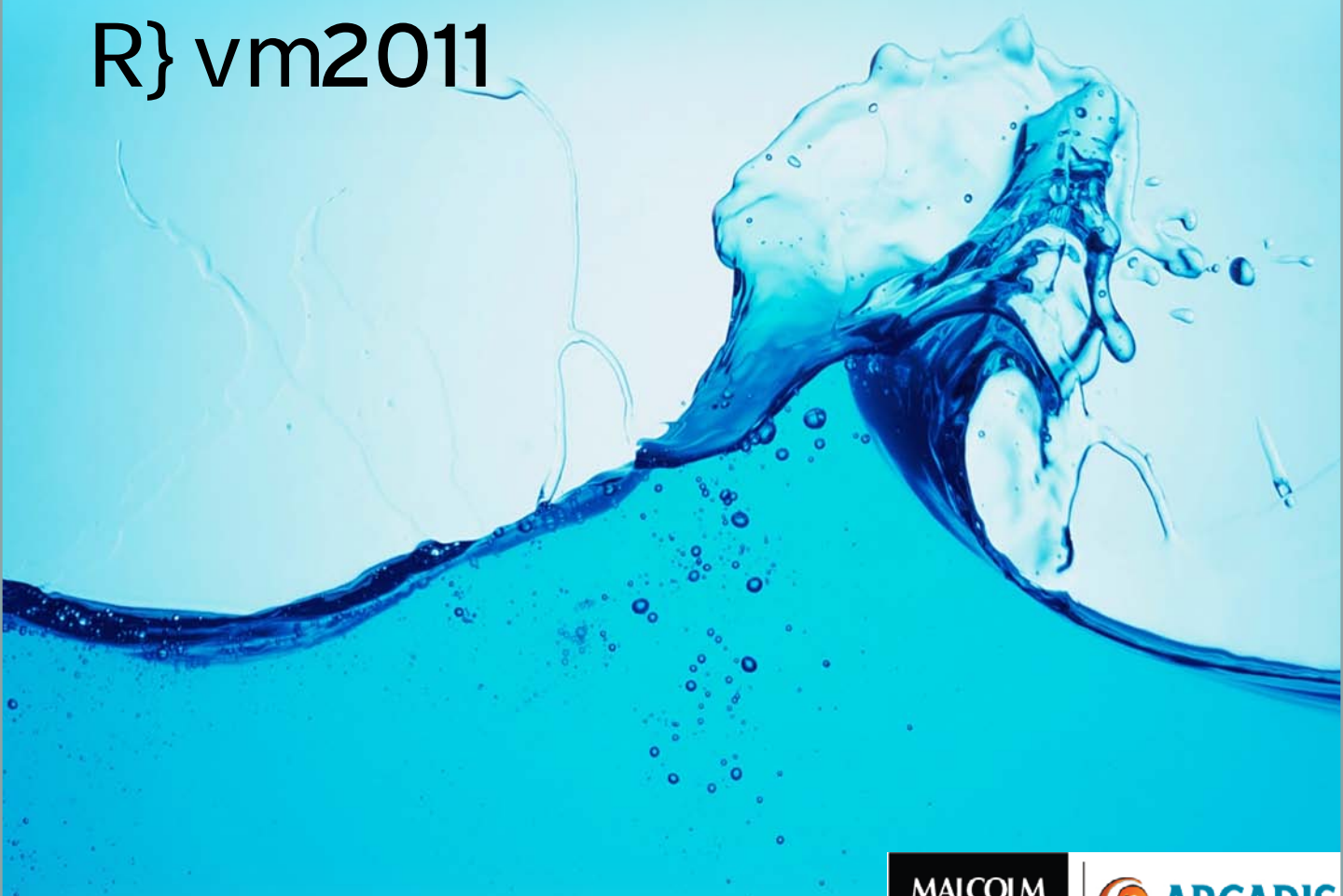


El Toro Water District

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2010 Urban Water Management Plan

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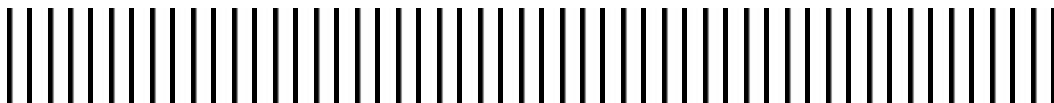


El Toro Water District

24251 Los Alisos Blvd • Lake Forest, CA 92630

2010 Urban Water Management Plan

June 2011



Report Prepared By:

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Acronyms Used in the Report

20x2020	20% water use reduction in GPCD by year 2020
Act	Urban Water Management Planning Act
AF	acre-feet
AFY	acre-feet per year
AMP	Allen-McColloch Pipeline
BDCP	Bay Delta Conservation Plan
BMP	Best Management Practice
CALFED	CALFED Bay-Delta Program
CDR	Center for Demographic Research
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CII	Commercial/Industrial/Institutional
CIMIS	California Irrigation Management Information System
COG	council of governments
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
DMM	Demand Management Measure
DWR	Department of Water Resources
EOCF #2	East Orange County Feeder #2
ETo	Evapotranspiration
ETWD	El Toro Water District
EWA	Environmental Water Account
FY	Fiscal Year
FYE	Fiscal Year Ending
GPCD	gallons per capita per day
gpm	gallons per minute
HECW	High Efficiency Clothes Washer
HET	high efficiency toilet
IRP	Integrated Water Resources Plan
IRWD	Irvine Ranch Water District
IWA	International Water Association
JRWSS	Joint Regional Water Supply System
LBCWD	Laguna Beach County Water District
LOI	Letter of Intent
LPCP	Landscape Performance Certification Program
Metropolitan	Metropolitan Water District of Southern California
MG	million gallons
MGD	million gallons per day
MNWD	Moulton Niguel Water District
MOU	Memorandum of Understanding
MWDOC	Municipal Water District of Orange County
NDMA	N-nitrosodimethylamine
NOAA	National Oceanic and Atmospheric Administration
Poseidon	Poseidon Resources LLC
PPCP	Pharmaceuticals and Personal Care Product
QSA	Quantification Settlement Agreement

RHNA	Regional Housing Needs Assessment
RUWMP	Regional Urban Water Management Plan
SBx7-7	Senate Bill 7 as part of the Seventh Extraordinary Session
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SDCWA	San Diego County Water Authority
SMWD	Santa Margarita Water District
SOCWA	South Orange County Wastewater Authority
SWP	State Water Project
TCWD	Trabuco Canyon Water District
TDS	Total Dissolved Solids
UAC	Urban Activities Center
ULFT	ultra-low-flush toilet
USBR	United States Bureau of Reclamation
UWMP	Urban Water Management Plan
WACO	Water Advisory Committee of Orange County
WEROC	Water Emergency Response Organization of Orange County
WOCWBF #2	West Orange County Water Board Feeder #2
WRP	El Toro Water District Water Recycling Plant
WSAP	Water Supply Allocation Plan
WSDM	Water Surplus and Drought Management Plan

Executive Summary

This report serves as the 2010 update of El Toro Water District's (ETWD) Urban Water Management Plan (UWMP). The UWMP has been prepared consistent with the requirements under Water Code Sections 10610 through 10656 of the Urban Water Management Planning Act (Act), which were added by Statute 1983, Chapter 1009, and became effective on January 1, 1984. The Act requires "every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually" to prepare, adopt, and file an UWMP with the California Department of Water Resources (DWR) every five years. 2010 UWMP updates are due to DWR by August 1, 2011.

Since its passage in 1983, several amendments have been added to the Act. The most recent changes affecting the 2010 UWMP include Senate Bill 7 as part of the Seventh Extraordinary Session (SBx7-7) and SB 1087. Water Conservation Act of 2009 or SBx7-7 enacted in 2009 is the water conservation component of the Delta package. It stemmed from the Governor's goal to achieve a 20% statewide reduction in per capita water use by 2020 (20x2020). SBx7-7 requires each urban retail water supplier to develop urban water use targets to help meet the 20% goal by 2020 and an interim 10% goal by 2015.

Service Area and Facilities

ETWD provides water to a population of over 52,000 customers throughout its 5,350 acre service area. ETWD receives its water from two main sources, recycled water and imported water from the Municipal Water District of Orange County (MWDOC). Imported water is treated at the Diemer Filtration Plant and is delivered to ETWD through four imported water connections.

Water Demand

Currently, the total water demand for retail customers served by ETWD is approximately 9,850 acre-feet annually consisting of 9,400 acre-feet of imported water and 450 acre-feet of recycled water. ETWD is projecting an 8% increase in demand in the next 25 years accompanying a projected 9% population growth.

With MWDOC's assistance, ETWD has selected to comply with **Option 1** of the SBx7-7 compliance options. ETWD is a member of the Orange County 20x2020 Regional Alliance formed by MWDOC. This regional alliance consists of 29 retail agencies in Orange County. Under Compliance Option 1, ETWD's 2015 interim water use target is 181.0 GPCD and the 2020 final water use target is **160.9 GPCD**.

Water Sources and Supply Reliability

ETWD's main sources of water supply are recycled water and imported water from Metropolitan through MWDOC. Today, ETWD relies on 5% recycled water and 95% imported water. It is projected that beginning 2015, 36% of ETWD's imported supply will come from the proposed Baker Water Treatment Plant, and the remaining 60% will come from MWDOC. The sources of imported water supplies include the Colorado River and the State Water Project (SWP). Metropolitan's 2010 Integrated Water Resources Plan (IRP) update describes the core water resource strategy that will be used to meet full-service demands (non-interruptible agricultural and replenishment supplies) at the retail level under all foreseeable hydrologic conditions from 2015 through 2035.

It is required that every urban water supplier assess the reliability to provide water service to its customers under normal, dry, and multiple dry water years. Metropolitan's 2010 RUWMP finds that Metropolitan is able to meet full service demands of its member agencies with existing supplies from 2015 through 2035 during normal years, single dry year, and multiple dry years. ETWD is therefore capable of meeting the water demands of its customers in normal, single dry, and multiple dry years between 2015 and 2035, as illustrated in Table 3-10, Table 3-11, and Table 3-12, respectively.

Future Water Supply Projects

ETWD is anticipated to have a capacity right of approximately 3,600 AFY in the proposed 28 MGD Baker Water Treatment Plant. The Plant will help provide a reliable local potable water supply in the event of emergency conditions or schedule maintenance of the Metropolitan delivery system. The Plant is expected to come online by 2013.

ETWD is in the planning stage of a recycled water distribution system project that would increase ETWD's recycled water supply by as much as 750 AFY. The project would construct recycled water distribution piping to be supplied by imported tertiary recycled water from the Irvine Ranch Water District (IRWD) and Moulton Niguel Water District (MWND). The project is anticipated to be completed by 2015.

In Orange County, there are three proposed ocean desalination projects that could serve MWDOC, including one specifically that may benefit ETWD with additional water supply. These are the Huntington Beach Seawater Desalination Project, the South Orange Coastal Desalination Project, and the Camp Pendleton Seawater Desalination Project. On July 23, 2009, ETWD signed a non-binding LOI for 2.7 MGD (3,000 AFY) of Huntington Beach Seawater Desalination Project supplies.

1. Introduction

1.1. Urban Water Management Plan Requirements

Water Code Sections 10610 through 10656 of the Urban Water Management Planning Act (Act) requires "every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually" to prepare, adopt, and file an UWMP with the California Department of Water Resources (DWR) every five years. 2010 UWMP updates are due to DWR by August 1, 2011.

This UWMP provides DWR with information on the present and future water resources and demands and provide an assessment of ETWD's water resource needs. Specifically, this document will provide water supply planning for a 25-year planning period in 5-year increments. The plan will identify water supplies for existing and future demands, quantify water demands during normal year, single-dry year, and multiple-dry years, and identify supply reliability under the three hydrologic conditions. ETWD's 2010 UWMP update revises the 2005 UWMP. This document has been prepared in compliance with the requirements of the Act as amended in 2009, and includes the following discussions:

- Water Service Area and Facilities
- Water Sources and Supplies
- Water Use by Customer Type
- Demand Management Measures
- Water Supply Reliability
- Planned Water Supply Projects and Programs
- Water Shortage Contingency Plan
- Recycled Water

Since its passage in 1983, several amendments have been added to the Act. The most recent changes affecting the 2010 UWMP include Senate Bill 7 as part of the Seventh Extraordinary Session (SBx7-7) and SB 1087. Water Conservation Act of 2009 or SBx7-7 enacted in 2009 is the water conservation component of the historic Delta package. It stemmed from the Governor's vision to achieve a 20% statewide reduction in per capita water use by 2020 (20x2020). SBx7-7 requires each urban retail water supplier to develop urban water use targets to help meet the 20% goal by 2020 and an interim 10% goal by 2015. Each urban retail water supplier must include in its 2010 UWMPs the following information from its target-setting process:

- Baseline daily per capita water use
- 2020 Urban water use target
- 2015 Interim water use target
- Compliance method being used along with calculation method and support data

Wholesale water suppliers are required to include an assessment of present and proposed future measures, programs, and policies that would help achieve the 20 percent by 2020 goal.

The other recent amendment made to the UWMP Act to be included in the 2010 UWMP is set forth by SB 1087, Water and Sewer Service Priority for Housing Affordable to Low-Income Households. SB 1087 requires water and sewer providers to grant priority for service allocations to proposed developments that include low income housing. SB 1087 also requires UWMPs to include projected water use for single- and multi-family housing needed for low-income households.

The sections in this Plan correspond to the outline of the Act, specifically Article 2, Contents of Plans, Sections 10631, 10632, and 10633. The sequence used for the required information, however, differs slightly in order to present information in a manner reflecting the unique characteristics of ETWD. The UWMP Checklist has been completed, which identifies the location of Act requirements in this Plan and is included as Appendix A.

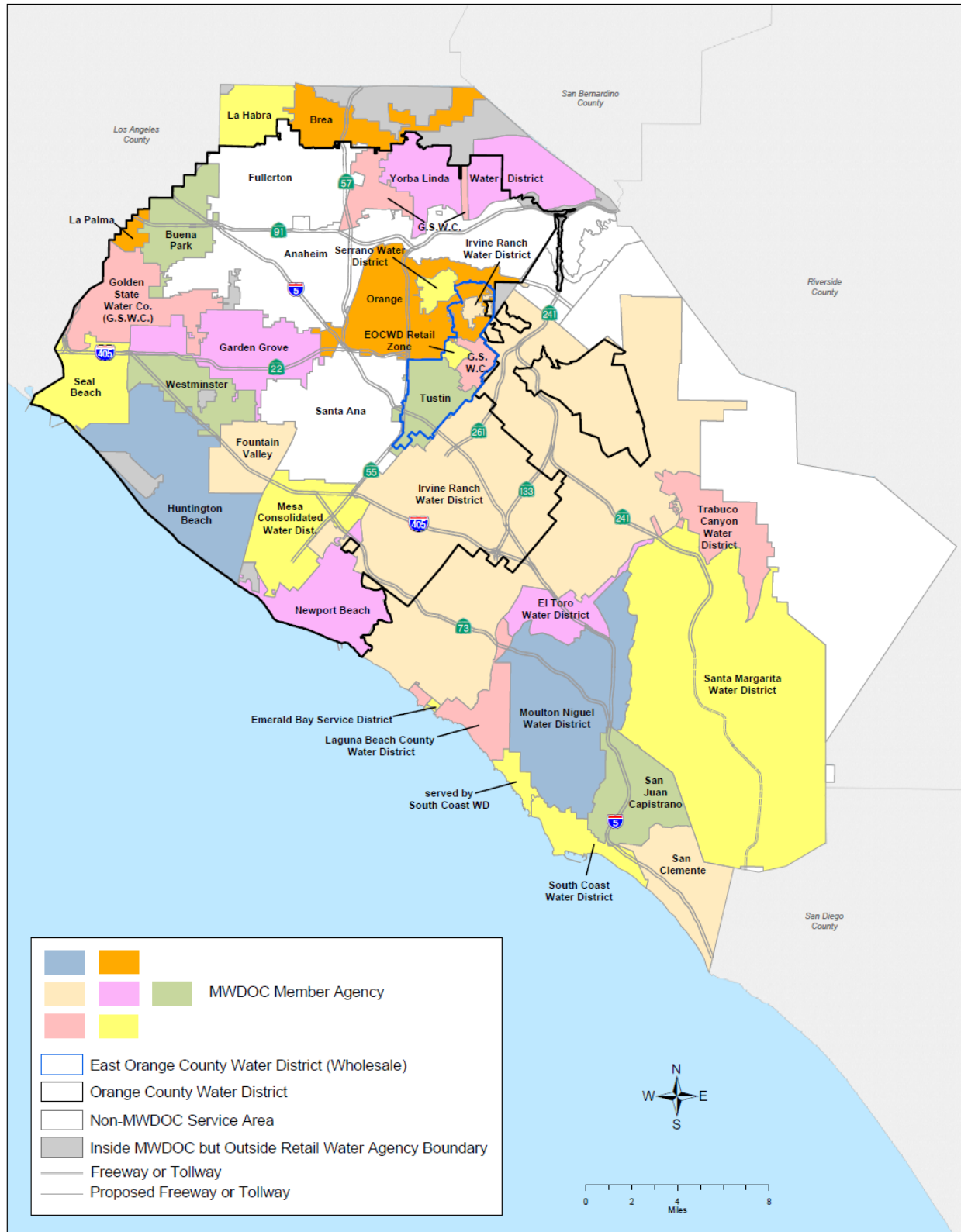


Figure 1-1: Regional Location of Urban Water Supplier

1.2. Agency Overview

ETWD, located within the southern portion of the County of Orange, was formed in 1960 under provisions of California Water District Law, Division 13 of the Water Code of the State of California, commencing with Section 34000 for the purpose of providing water supply for the service area. ETWD is governed by a publicly elected five-member Board of Directors. The current board members are:

- Ted F. Martin, President
- M. Scott Goldman, Vice President
- John S. Dudley, Treasurer
- William H. Kahn, Director
- Jerard B. Werner, Director

ETWD receives its water from two main sources, recycled water, and imported water from the Municipal Water District of Orange County (MWDOC). MWDOC is Orange County's wholesale supplier and is a member agency of the Metropolitan Water District of Southern California (Metropolitan).

1.3. Service Area and Facilities

1.3.1. ETWD's Service Area

Today, ETWD encompasses approximately 5,350 acres and provides water and sewer service to over 52,000 customers. ETWD is almost entirely developed and encompasses all of the City of Laguna Woods and portions of four other cities: Lake Forest, Aliso Viejo, Laguna Hills and Mission Viejo. The ETWD Service Area Map may be found on Figure 1-2.

The ETWD service area ranges in elevation between 230 feet above sea level at its lowest point to 904 feet at its highest. In general, elevations increase from west to east. Interstate 5 bisects ETWD from north to south, with the higher elevations located on the east side. ETWD is bordered by the Irvine Ranch Water District (IRWD) to the north, the Laguna Beach County Water District (LBCWD) to the west, the Moulton Niguel Water District (MNWD) to the west and south, and the Santa Margarita Water District (SMWD) to the south and east. ETWD also shares a small border with the Trabuco Canyon Water District (TCWD) in the northern part.

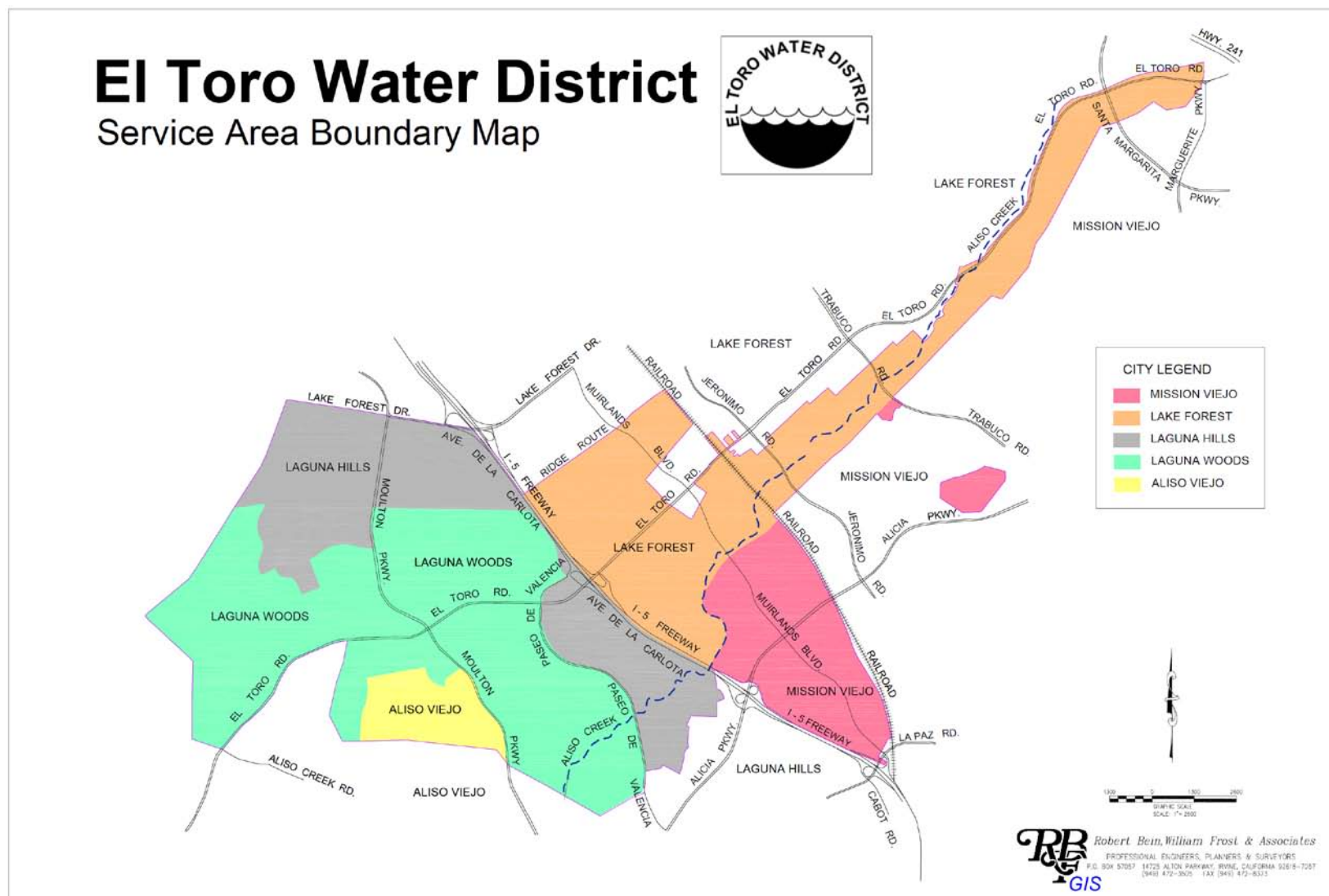


Figure 1-2: El Toro Water District's Service Area

1.3.2. ETWD's Water Facilities

ETWD relies on imported treated water from the Metropolitan transmission system to meet all of their demands. In general, imported water from Metropolitan fills ETWD's 275.0 million gallon R-6 reservoir or directly feeds the distribution system. From the R-6 reservoir water is fed by gravity, through pressure reducing valves or via pumping stations to provide adequate system pressures at ETWD's service connections. ETWD operates and maintains a system that has approximately 10,000 service connections, 13 different pressure zones, 6 reservoirs, 8 pump stations, 19 pressure reducing stations and approximately 170 miles of transmission and distribution pipelines of varying diameters between 4-inches and 24-inches.

2. Water Demand

2.1. Overview

Currently, the total water demand for retail customers served by ETWD is approximately 9,850 acre-feet consisting of 9,400 acre-feet of potable water and 450 acre-feet of recycled water. In the last five years, ETWD's water demand has decreased 15 percent while population has increased by 1.8 percent. This illustrates ETWD's proactive efforts in promoting water use efficiency. With its diligence in the promotion of water conservation as well as financial incentives to customers to retrofit their homes and businesses with water efficient devices and appliances, ETWD is projecting an 8 percent increase in demand over the next 25 years and a 9 percent population growth.

The passage of SBx7-7 will increase efforts to reduce the use of potable supplies in the future. This new law requires all of California's retail urban water suppliers serving more than 3,000 AFY or 3,000 service connections to achieve a 20% reduction in potable water demands (from a historical baseline) by 2020. Due to great water conservation efforts in the past decade, ETWD is on its way to meeting this requirement on its own. Moreover, ETWD has elected to join the Orange County 20x2020 Regional Alliance. ETWD together with other 28 retail agencies in Orange County are committed to reduce the region's water demand by 2020 through the leadership of MWDOC, the region's wholesale provider.

This section will explore in detail ETWD's current water demands by customer type and the factors which influence those demands as well as providing a perspective of its expected future water demands for the next 25 years. In addition, to satisfy SBx7-7 requirements, this section will provide details of ETWD's SBx7-7 compliance method selection, baseline water use calculation, and its 2015 and 2020 water use targets.

2.2. Factors Affecting Demand

Water consumption is influenced by many factors from climate characteristics of that hydrologic region, to demographics, land use characteristics, and economics. The key factors affecting water demand in ETWD's service area are discussed below.

2.2.1. Climate Characteristics

The ETWD service area encompasses portions of south Orange County located in an area known as the South Coast Air Basin (SCAB). The SCAB climate is characterized by what is known as Southern California's "Mediterranean" climate: a semi-arid environment with mild winters, warm summers and moderate rainfall. Table 2-1 below

shows climate data for ETWD service area. The service area's average temperature ranges from 55°F in January to 73.1°F in August. The average annual rainfall is 14 inches, and the average Evapotranspiration (ETo) is 49.6 inches. The average ETo is almost 50 inches per year, which is four times the annual average rainfall. This translates to a high demand for landscape irrigation for homes, commercial properties, parks, and golf courses. Moreover, a region with low rainfall like Southern California is also more prone to droughts.

Table 2-1: Climate Characteristics

	Standard Monthly Average ETo (inches) [1]	Annual Rainfall (inches) [2]	Average Temperature (°F) [3]
Jan	2.18	2.96	54.5
Feb	2.49	3.07	55.9
Mar	3.67	2.97	57.3
Apr	4.71	0.77	60.9
May	5.18	0.28	64.2
Jun	5.87	0.10	68.1
Jul	6.29	0.01	72.1
Aug	6.17	0.14	73.1
Sep	4.57	0.34	71.4
Oct	3.66	0.40	66.1
Nov	2.59	1.22	59.1
Dec	2.25	1.79	54.3
Annual	49.63	13.87	63.1

[1] CIMIS Station #75, Irvine, California from October 1987 to Present

[2] NOAA, Santa Ana Fire Station, California 1971 to 2000, Mean Precipitation Total

[3] NOAA, Santa Ana Fire Station, California 1971 to 2000, Mean Temperature

The source of ETWD's imported water supplies, the State Water Project and Colorado River Project, is influenced by weather conditions in Northern California and along the Colorado River. Both regions have recently suffered from multi-year drought conditions and record low rainfalls which directly impact demands and supplies to Southern California.

2.2.2. Demographics

The service area of ETWD is fully developed. Any new development or re-development will have a very minor impact on population or water demands. Table 2-2 below shows current and projected population through 2035 obtained from the Center for Demographic Research at California State University, Fullerton (CDR). Currently,

ETWD serves a population of 52,019. The population in ETWD's service area is projected to increase to 56,574 by 2035. This represents a 9 percent increase over 25 years or an average growth of 0.36 percent annually.

Table 2-2: Population - Current and Projected

	2010	2015	2020	2025	2030	2035-opt
Service Area Population [1]	52,019	52,930	53,841	54,752	55,663	56,574

[1] Center for Demographic Research, California State University, Fullerton 2010

2.2.3. Land Use

ETWD serves essentially built-out communities comprised primarily of residential areas. There are large commercial developments along El Toro Road and the Interstate 5 Freeway, including the Laguna Hills Mall. Approximately 1,910 acres of ETWD's service area is dedicated to the Laguna Woods Village community, which is a gated retirement community comprised of residential communities of varying densities and a golf course. The areas immediately surrounding Laguna Woods Village consist of commercial and medical buildings, including the Saddleback Memorial Hospital.

Land use information was compiled from the most current General Plan of each of the five cities within the ETWD boundary. Each city has its own unique land use and density classifications. Any changes in land use are anticipated to be by means of redevelopment due to the fact that ETWD is essentially built-out. The information obtained from each respective city is summarized below.

City of Aliso Viejo

The City of Aliso Viejo plans to redevelop a 234-acre area piece of land within ETWD's southern boundary. The planned area of redevelopment is located north of Glenwood Drive, between Aliso Creek Road and Cedarbrook. The redevelopment area covers a total of 234 acres; however the portion that lies within ETWD's boundary is primarily the golf course. It is not anticipated that these proposed redevelopments will impact ETWD's water or sewer system since they do not lie within ETWD's service boundary.

City of Mission Viejo

A parcel of land referred to as "Aegean Hills" is the only section of Mission Viejo within the ETWD boundary. This area is currently fully developed with residential and commercial land uses. There are no plans to redevelop this land in the near future. This area is currently at its ultimate build-out condition and potential redevelopment should not impact the water demands or wastewater generation.

City of Laguna Hills

The City of Laguna Hills 2009 General Plan describes four future study areas that have been considered for revitalization in the future. Two of these future study areas are within ETWD's service area including the Urban Village and North Business Park.

Urban Village¹ – The Urban Village is identified as the area surrounding the Laguna Hills Mall and Saddleback Hospital and covers nearly 240 acres. The Urban Village area is the heart of Laguna Hills providing over 2 million square feet of retail, medical, and professional office uses, and 756 residential dwelling units. Some goals for the Urban Village are to establish a more pedestrian-oriented environment and to make it feel more like a “Downtown” environment, by creating a Main Street that connects with a new Civic Center. Development in the Urban Village will be restricted by vehicle “trip budget” limits set forth in the General Plan and may not exceed the following quantities:

Retail:	300,000 square feet
Hotel:	250 rooms
Residential:	200 dwelling units
Medical/General Office:	138,000/380,000 square feet

There is some flexibility in the development which may allow retail users to occupy more land if fewer offices are established, or vice-versa, provided the vehicle “trip budget” is not surpassed. Development of the Urban Village will result in additional water demands and wastewater generation which will impact ETWD's system.

North Business Park² – The North Business Park is a 380-acre study area located in the northern part of Laguna Hills. The majority (262 acres) of this study area is designated as Mixed Use. Existing uses within North Business Park area include offices, retail, restaurants, motels, furniture stores, and industrial business. No land use designation changes are proposed in this area. However, since many of the facilities within this area are one-story tilt-up construction buildings, opportunities for intensification are possible. No information on increase water demand was provided in the Laguna Hills General Plan.

City of Laguna Woods

Laguna Woods is the only city that lies entirely within ETWD. The City of Laguna Woods 2006-2014 Housing Element describes new and potential residential development sites including the San Sebastian senior condominium, Parcel 1, and three vacant sites designated as Urban Activities Center District (UAC).

¹ City of Laguna Hills General Plan, July 14, 2009, p. LU-25 to LU-28

² City of Laguna Hills General Plan, July 14, 2009, p. LU-25 to LU-28

Vacant Residentially Zoned Site: Parcel 1³ – Parcel 1 is a 3.3-acre site which the City of Laguna Woods identified as suitable for future development with residential uses. The area is designated for high density residential uses with an expected density of 35 dwelling units per acre and a total of 115 high-density, multi-story units. Water use as a result of this residential development could increase by approximately 35,178 gallons per day.

Urban Activities Center District Vacant Sites⁴ - In addition to Parcel 1, several vacant sites are designated Urban Activities Center District in the City of Laguna Woods General Plan, Land Use Element⁵ allowing for mixed-use development that may include both commercial and residential uses. The designated areas include

- Parcel 2 is a two-acre site that would be developed into a restaurant and retail building area.
- Parcel 3 is a 4.0-acre undeveloped parcel that may accommodate up to 52,000 square feet of retail space and/or office space.
- Parcel 4 is the existing 5.6-acre Laguna Woods Village Equestrian Center that would be relocated and turned into a commercial building area of up to 73,000 square feet.
- Parcel 5 is a vacant 2.4-acre lot which could potentially be developed into commercial space of up to 31,000 square feet.
- Parcel 6 has a maximum of 26,000 square feet of potential office or retail space.
- Parcel 7, which the Land Use Element identifies as a site that can potentially accommodate up to 299 residential units.

These potential development and redevelopment projects would increase both the water and sewer demands impacting ETWD's system.

City of Lake Forest

There are three specific areas within the City of Lake Forest that are currently planned or being considered for redevelopment:

- Jeronimo Industrial Area Redevelopment.
- Saddleback Ranch Apartments Redevelopment.
- Conversion of mobile home parks to master planned communities.

The existing land near the intersection of Jeronimo Road and El Toro Road includes industrial properties that ETWD envisions eventually redeveloping to better fit in with

³ City of Laguna Woods 2006-2014 Housing Element, June 2008 (p.79-81)

⁴ City of Laguna Woods 2006-2014 Housing Element, June 2008 (p.76-77)

⁵ City of Laguna Woods General Plan, Amended July 16, 2003 (p.LU-7-LU-11)

nearby themes. No specific plans for redevelopment are currently underway. The area impacted is approximately 33 acres. The redevelopment could include a transit station, commercial properties and residential land use. It is anticipated that this project will increase ETWD's domestic water demand and wastewater generation.

The Saddleback Ranch Apartments are located off of Los Alisos Boulevard. Possible redevelopment in that area would add 244 dwelling units on 7 acres of land that are currently not developed. No specific plans are underway for the apartments at this time however this project would increase the water demand and wastewater generation in ETWD and are accounted for in this report.

2.3. Water Use by Customer Type

The knowledge of an agency's water consumption by type of use or by customer class is key to developing that agency's water use profile which identifies when, where, how, and how much water is used, and by whom within the agency's service area. A comprehensive water use profile is critical to the assessment of impacts of prior conservation efforts as well as to the development of future conservation programs.

This section provides an overview of ETWD's water consumption by customer type in 2005 and 2010, as well as projections for 2015 to 2035. The customer classes are categorized as follows: single-family residential, multi-family residential, commercial/industrial/institutional (CII), dedicated landscape, and agriculture. Other water uses including sales to other agencies and non-revenue water are also discussed in this section.

2.3.1. Overview

ETWD has maintained approximately 10,000 customer connections to its potable water distribution system since 2005. The number of connections is expected to remain stable through to 2035. All connections in ETWD's service area are metered.

Approximately 60% of ETWD's water demand is residential. Commercial/industrial and dedicated landscape sectors consume approximately 40% of ETWD's water supply. A small portion of ETWD's demand is from government/institutional establishments such as municipal buildings and hospitals (1% of total demand). ETWD does not provide any sales to agriculture, nor other agencies, saline water intrusion barriers, groundwater recharge, or conjunctive use. An 8% increase in water demand between 2010 and 2035 is anticipated for ETWD's service area while population is projected to increase by 9% over the same period.

Tables 2-3 and 2-4 provide a summary of past, current, and projected water use by customer class and the number of water service customers by sector in five-year increments from 2005 through to 2035.

Table 2-3: Past, Current and Projected Number of Accounts

Fiscal Year Ending	Number of Accounts by Water Use Sector					
	Single Family	Multi- Family	Commercial	Institutional/ Gov	Landscape	Total Accounts
2005	5,676	2,609	869	23	865	10,042
2010	5,677	2,613	918	22	806	10,036
2015	5,677	2,613	918	22	806	10,036
2020	5,677	2,613	918	22	806	10,036
2025	5,677	2,613	918	22	806	10,036
2030	5,677	2,613	918	22	806	10,036
2035	5,677	2,613	918	22	806	10,036

Table 2-4: Past, Current and Projected Water Demand (AFY)

Fiscal Year Ending	Water Demand by Water Use Sectors (AFY)					
	Single Family	Multi- Family	Commercial	Institutional/ Gov	Landscape	Total Demand
2005	3,077	3,370	1,193	71	3,212	10,922
2010	2,774	3,039	1,075	63	2,899	9,850
2015	2,774	3,164	1,175	63	2,899	10,075
2020	2,774	3,289	1,275	63	2,899	10,300
2025	2,774	3,438	1,424	63	2,899	10,598
2030	2,774	3,438	1,424	63	2,899	10,598
2035	2,774	3,438	1,424	63	2,899	10,598

2.3.2. Residential

Residential water use accounts for the majority (just under 60%) of ETWD's water demands. The single family residential sector accounts for approximately 28% and multi-family residential accounts for 31% of the total water demand. The remaining demands are for the non-residential sector and system losses. Water consumption by the residential sector is projected to remain the same through the 25-year planning horizon.

2.3.3. Non-Residential

ETWD has a mix of commercial uses (markets, restaurants, etc.), public entities (such as schools, fire stations and government offices), office complexes, light industrial, warehouses and facilities serving the public. In 2010 non-residential demand was approximately 40% of the overall demand and is expected to remain so through 2035. Commercial, industrial, and institutional (CII) uses (excluding large landscape) represent

a combined 12% of ETWD's total demand. Demands from large landscapes such as parks and golf courses are expected to remain just under 30% of ETWD's total water demands for the next 25 years. Portion of the landscape irrigation demands are met through recycled water.

2.3.4. Other Water Uses

2.3.4.1. Sales to Other Agencies

ETWD does not sell water to other agencies except in case of emergencies. Specifically, ETWD has only sold water to two South Orange County water agencies - Moulton Niguel Water District and Santa Margarita Water District in the times when the Diemer Treatment Plant or the Allen McColloch Pipeline were shut down. The water from ETWD is delivered to the agencies as in-lieu water from Metropolitan.

2.3.4.2. Non-Revenue Water

Non-revenue water is defined by the International Water Association (IWA) as the difference between distribution systems input volume (i.e. production) and billed authorized consumption. Non-revenue water consists of three components: unbilled authorized consumption (e.g. hydrant flushing, fire fighting, and blow-off water), real losses (e.g. leakage in mains and service lines), and apparent losses (unauthorized consumption and metering inaccuracies).

ETWD's non-revenue water accounts for just over three percent of ETWD's total demand. Table 2-5 summarizes additional water uses and losses applicable to ETWD.

Table 2-5: Additional Water Uses and Losses (AFY)

Water Use	Fiscal Year Ending						
	2005	2010	2015	2020	2025	2030	2035-opt
Saline Barriers	-	-	-	-	-	-	-
Groundwater Recharge	-	-	-	-	-	-	-
Conjunctive Use	-	-	-	-	-	-	-
Raw Water	-	-	-	-	-	-	-
Recycled Water	-	-	-	-	-	-	-
Unaccounted-for System Losses	425	300	300	300	300	300	300
Total	425	300	300	300	300	300	300

2.4. SBx7-7 Requirements

2.4.1. Overview

SBx7-7, which became effective on February 3, 2010, is the water conservation component to the Delta legislative package. It seeks to implement Governor

Schwarzenegger's 2008 water use reduction goals to achieve a 20% statewide reduction in urban per capita water use by December 31, 2020. As discussed above, the bill requires each urban retail water supplier to develop urban water use targets to help meet the 20% goal by 2020 and an interim 10% goal by 2015. The bill establishes methods for urban retail water suppliers to determine targets to help achieve water reduction targets. The retail water supplier must select one of the four compliance options. The retail agency may choose to comply to SBx7-7 as an individual or as a region in collaboration with other water suppliers. Under the regional compliance option, the retail water supplier still has to report the water use target for its individual service area. The bill also includes reporting requirements in the 2010, 2015, and 2020 UWMPs. An agency that does not comply with SBx7-7 requirement will not be eligible for water related grant, or loan, from the state on and after July 16, 2016. However, if an agency that is not in compliance documents a plan and obtains funding approval to come into compliance then could become eligible for grants or loans.

2.4.2. SBx7-7 Compliance Options

DWR has established four compliance options for urban retail water suppliers to choose from. Each supplier is required to adopt one of the four options to comply with SBx7-7 requirements. The four options include:

- *Option 1* requires a simple 20% reduction from the baseline by 2020 and 10 percent by 2015.
- *Option 2* employs a budget-based approach by requiring an agency to achieve a performance standard based on three metrics
 - Residential indoor water use of 55 GPCD
 - Landscape water use commiserate with Model Landscape Ordinance
 - 10 percent reduction in baseline CII water use
- *Option 3* is to achieve 95% of the applicable state hydrologic region target as set forth in the State's 20x2020 Water Conservation Plan.
- *Option 4* requires the subtraction of Total Savings from the Base GPCD:
 - Total Savings includes indoor residential savings, meter savings, CII savings, and landscape and water loss savings.

ETWD's Compliance Option Selection

With MWDOC's assistance in the calculation of ETWD's base daily per capita use and water use targets, ETWD has selected to comply with **Option 1**.

While each retail agency is required to choose a compliance option in 2010, DWR allows for the agency to change its compliance option in 2015. This will allow ETWD to determine its water use targets for Compliance Option 2 and 4 as it anticipates more data to be available for targets calculation in the future.

2.4.3. Regional Alliance

Retail agencies can choose to meet the SBx7-7 targets on its own or several retail agencies may form a regional alliance and meet the water use targets as a region. The benefit for an agency that joins a regional alliance is that it has multiple means of meeting compliance.

ETWD is a member of the Orange County 20x2020 Regional Alliance formed by MWDOC. This regional alliance consists of 29 retail agencies in Orange County as described in MWDOC's 2010 RUWMP. The Regional Alliance Weighted 2015 target is 174 GPCD and 2020 target is 157 GPCD.

2.4.4. Baseline Water Use

The first step to calculating an agency's water use targets is to determine its base daily per capita water use (baseline water use). This baseline water use is essentially the agency's gross water use divided by its service area population, reported in gallons per capita per day (GPCD). The baseline water use is calculated as a continuous 10-year average during a period, which ends no earlier than December 31, 2004 and no later than December 31, 2010. Agencies that recycled water made up 10% or more of 2008 retail water delivery can use up to a 15-year average for the calculation.

Recycled water use represents less than 10% of ETWD's retail delivery in 2008; therefore, a 10-year instead of a 15-year rolling average was calculated. ETWD's baseline water use is **201.1 GPCD**, which was obtained from the 10-year period July1, 1995 to June 30, 2005.

Tables 2-6 and 2-7 provide the base period ranges used to calculate the baseline water use for ETWD as well as the service area population and annual water use data which the base daily per capita water use was derived. Data provided in Table 2-6 was used to calculate the continuous 10-year average baseline GPCD. Moreover, regardless of the compliance method adopted by ETWD, it will need to meet the minimum water use target of 5% reduction from a five-year baseline as calculated in Table 2-7.

Table 2-6: Base Daily per Capita Water Use – 10-year range

Highest Available Baseline [1]		Beginning	Ending
10 Year Avg		July 1, 1995	June 30, 2005

Fiscal Year Ending	Service Area Population	Gross Water Use (gallons per day)	Daily Per Capita Water Use
1996	46,747	9,910,780	212
1997	47,402	10,361,794	219
1998	48,117	9,030,269	188
1999	48,829	9,828,737	201
2000	49,796	10,594,978	213
2001	50,149	9,783,475	195
2002	50,570	9,999,787	198
2003	50,913	10,476,958	206
2004	51,076	10,194,851	200
2005	51,086	9,210,781	180
Base Daily Per Capita Water Use:			201.1

[1] The most recent year in base period must end no earlier than December 31, 2004, and no later than December 31, 2010. The base period cannot exceed 10 years unless at least 10 percent of 2008 retail deliveries were met with recycled water.

Table 2-7: Base Daily per Capita Water Use – 5-year range

Highest Available Baseline [2]		Beginning	Ending
5 Year Avg		July 1, 2003	June 30, 2008

Fiscal Year Ending	Service Area Population	Gross Water Use (gallons per day)	Daily Per Capita Water Use
2004	51,076	10,194,851	200
2005	51,086	9,210,781	180
2006	51,076	9,362,637	183
2007	51,076	10,301,266	202
2008	51,275	9,858,198	192
Base Daily Per Capita Water Use:			191.4

[2] The base period must end no earlier than December 31, 2007, and no later than December 31, 2010.

2.4.5. SBx7-7 Water Use Targets

Under Compliance Option 1, the simple 20% reduction from the baseline, ETWD's 2015 interim water use target is 181.0 GPCD and the 2020 final water use target is **160.9 GPCD** as summarized in Table 2-8.

Table 2-8: Preferred Compliance Option and Water Use Targets

	Baseline	2015 Target	2020 Target
Option 1 - Simple 20% Reduction	201.1	181.0	160.9

2.4.6. Water Use Reduction Plan

ETWD is a member agency of MWDOC and a member of the Orange County 20x2020 Regional Alliance comprising 29 retail urban water suppliers in Orange County. The Orange County 20x2020 Regional Alliance was created to allow local water suppliers to meet their 20% by 2020 reduction targets under SBx7-7 on a regional basis through the successful implementation of region-wide programs.

The Orange County 20x2020 Regional Alliance will achieve its water use reduction by building on the existing collaboration between Metropolitan, MWDOC and the local agencies in Orange County. MWDOC as a regional wholesale water provider implements many of the urban water conservation Best Management Practices (BMPs) on behalf its member agencies. MWDOC's conservation measures are detailed in MWDOC's RUWMP Section 4, and Metropolitan's conservation measures detailed in Metropolitan's 2010 RUWMP Section 3.4.

Additionally, Metropolitan in collaboration with MWDOC and other Metropolitan member agencies is in the process of developing a Long Term Conservation Plan,⁶ which seeks an aggressive water use efficiency target in order to achieve a 20% reduction in per capita water use by 2020 for the entire Metropolitan service area.

Metropolitan Long Term Conservation Plan

Metropolitan's Long Term Conservation Plan will build on Metropolitan's traditional programs of incentives, education and broad outreach while developing a new vision of water use efficiency by altering the public's perspective on water through market transformation. The overarching goals of the Long Term Conservation Plan are as follows:

- Achieve the 2010 IRP conservation target – The target for new water savings through conservation is a regional per capita use of 159 gallons per day in 2015 and 141 gallons per day in 2020.
- Pursue innovation that will advance water conservation
- Transform the public's value of water within this region – A higher value on water within this region can lead to a conservation ethic that results in permanent

⁶ Metropolitan Water District of Southern California Long Term Conservation Plan Working Draft Version 6 (November 30, 2010)

change in water use behavior, earlier adoption of new water saving technologies, and transition towards climate-appropriate landscapes.

Achieving these goals requires the use of integrated strategies that leverage the opportunities within this region. It requires regional collaboration and sustained support for a comprehensive, multi-year program. It requires a commitment to pursue behavioral changes and innovation in technologies that evolve the market for water efficient devices and services. It requires strategic, focused implementation approaches that build from broad-based traditional programs. It requires that research be conducted to provide the basis for decisions. Lastly, it requires the support of local leaders to communicate a new value standard for water within this region. Metropolitan and its member agencies will implement the five strategies through a traditional program, a market acceleration program, and legislation and regulation. The five strategies include:

- **Use catalysts for market transformation.** Metropolitan and member agencies will pursue market transformation to affect the market and consumer choices for water efficient devices and services.
- **Encourage action through outreach and education.** Metropolitan and member agencies will provide outreach, educational workshops, and training classes through a range of media and formats which are essential to changing public perceptions of the value of water.
- **Develop regional technical capability.** Metropolitan and member agencies will conduct research, facilitate information sharing, and/or provide technical assistance to member agencies and retail agencies to develop technical capabilities within the region for water budgeting, advanced metering infrastructure, ordinances, retail rate structures, and other conservation measures.
- **Build strategic alliances.** Metropolitan and member agencies will form strategic alliances with partners to leverage resources, opportunities and existing momentum that support market transformation.
- **Advance water efficiency standards.** Metropolitan and member agencies will work to advance water efficiency codes and standards to increase efficiency and reduce water waste.

Successful market transformation requires the integrated use of all five strategies. It is implemented through three complementary programs: traditional and market acceleration programs, and legislation and regulation. When used together, these approaches can be catalytic and transform markets.

Traditional Program: A traditional program of incentives, outreach, education, and training will be used to provide a foundation of water savings, establish baseline conditions, provide market data, and help determine devices and services that are primed

for market acceleration. Implementation may include regional incentive programs, pilot programs, regional outreach, and research for a variety of devices and services.

Market Acceleration Program: A portion of Metropolitan’s resources will be used for market acceleration of devices and services that have potential for market change. Metropolitan will use a strategic focus for a specified time period to affect the market for a particular device or service. Tactics may include strategic outreach to manufacturers, retailers, contractors, and consumers; enhanced incentives; and collaboration on implementation.

Legislation and Regulation: Are important tools and often the primary means for ensuring future water savings from devices and services. Regulation, ordinances and codes establish conditions that will ensure a minimum level of water efficiency for a particular device or service in the future. Markets are dynamic, and the influences on manufactures, retailers, and consumers are constantly changing. Progress made on changing consumer preferences a market share of efficient products is protected through legislation and regulations requiring a minimum efficiency standard. This benefits both water agencies and manufactures who invest in bringing water-efficiency technologies to the market. Legislation and regulation are also effective exit strategies to discontinue traditional incentive programs so that resources can be redirected to new technologies and approaches.

Implementation of the combined programs, Traditional - Market Acceleration – Legislation and Regulation, will be closely coordinated between Metropolitan, member agencies and sub-agencies to maximize synergies. An adaptive management approach will be employed using research, implementation and evaluation to guide decisions on program activities and intensity.

Periodic Review

A periodic review of conservation actions to measure progress towards the water savings goals will be an integral component of the effort. The review will include work that is completed or in progress. It will consider factors that have affected the results as well as the opportunities to improve cost effectiveness and water savings.

2.5. Demand Projections

2.5.1. 25 Year Projections

Table 2-9 provides a projection of ETWD’s water supply sources for the next 25 years. In 2010, imported water from Metropolitan through MWDOC represents 95% of ETWD’s water demand. The need for imported treated water from Metropolitan will decrease slightly when the Baker Water Treatment Plant comes online. The Baker Water Treatment Plant is expected to come online in FY 2012-13 and will provide 3,600 AFY

to ETWD. Recycled water from ETWD's Recycling Plant (WRP) makes up the balance of the demand of 450 AFY.

Table 2-9: Current and Projected Water Demands (AFY)

Water Supply Sources	Fiscal Year Ending					
	2010	2015	2020	2025	2030	2035
MWDOC (Imported Treated Full Service (non-int.))	9,400	5,275	5,500	5,798	5,798	5,798
Baker Treatment Plant (Imported Untreated Full Service (non-int.))	-	3,600	3,600	3,600	3,600	3,600
Recycled Water	450	1,200	1,200	1,200	1,200	1,200
Total	9,850	10,075	10,300	10,598	10,598	10,598

ETWD's 25-year demand projections for imported water shown in Table 2-10 are based on the projections provided by ETWD to MWDOC. As the regional wholesale supplier of Orange County, MWDOC works in collaboration with each of its member agencies as well as with Metropolitan, its wholesaler, to develop demand projections for imported water.

Table 2-10: ETWD's Demand Projections Provided to Wholesale Suppliers (AFY)

Wholesalers	Fiscal Year Ending				
	2015	2020	2025	2030	2035
MWDOC	5,275	5,500	5,798	5,798	5,798
Baker Treatment Plant	3,600	3,600	3,600	3,600	3,600

2.5.2. Low Income Household Projections

One significant change to the UWMP Act since 2005 is the requirement that retail water suppliers develop water use projections for "low-income" households at the single-family and multifamily level. These projections assist retail suppliers with compliance with Section 65589.7 of the Government Code, which requires suppliers to grant a priority for the provision of service to low income households. Consistent with this Code section, a low-income household is defined as a household earning 80% of the County of Orange's median income or less.

In order to identify the low income housing projections within its service area, DWR⁷ recommends that retail suppliers rely on the Regional Housing Needs Assessment (RHNA) or Regional Housing Needs Plan information developed by the local council of governments (COG), in coordination with the California Department of Housing and Community Development.

The RHNA process quantifies the need for housing by income group within each jurisdiction during specific planning period and is used in Housing Element and General Plan updates. COGs are required by the State Housing Law to determine the existing and projected regional housing needs for persons at all income levels. The RHNA is to prioritize local resource allocation and to help decide how to address existing and future housing needs.

Existing and projected housing needs for Orange County were incorporated into the Southern California Association of Governments' (SCAG) 2007 Final Regional Housing Need Allocation Plan (2007 RHNA Plan)⁸. This plan covers the planning period January 1, 2006 to June 30, 2014. The next RHNA process is not expected to be completed until fall of 2012; therefore, the 2007 RHNA Plan will be used for the purpose of this 2010 UWMP.

The projected water demands for low-income households in the ETWD service area was estimated by calculating the percentage of projected low income units in the service area as a percentage of the total projected units from the 2007 RHNA Plan. Given that ETWD's service area covers portions of five cities within Orange County, a weighted average of the RHNA projection for each city served by ETWD was calculated based on the proportion of each city within the water district. For example, as summarized in Table 2-11, approximately 2.5% of ETWD's service area lies within the City of Aliso Viejo. Based on the 2007 RHNA Plan, the projected housing need for low-income households in the City of Aliso Viejo is 40.6% of total housing needs. Therefore, the area weighted projected water demands for low-income households for the City of Aliso Viejo is 1.0% (2.5% times 40.6%). The same procedure is repeated for all cities within ETWD's service area, which results in an overall projected housing need for low-income households of 37.5% as a percentage of total housing units.

⁷ California Department of Water Resources, Guidebook to Assist Urban Water Suppliers to Prepare a 2010 UWMP, Final (March 2011)

⁸ Southern California Association Governments, Final Regional Housing Need Allocation Plan for Jurisdictions within the Six County SCAG Region (July 2007)

Table 2-11: Weighted Percentage of Low-income Household within ETWD's Service Area

City	% Area Served	% Low-income Households by City (RHNA)	Weighted % Low-income Households
Aliso Viejo	2.5%	40.6%	1.00%
Laguna Hills	17%	37.5%	6.56%
Laguna Woods	35%	35.9%	12.60%
Lake Forest	32%	37.9%	11.95%
Mission Viejo	13%	40.4%	5.43%
Total	100%	Weighted Average	37.5%

Table 2-12 provides a breakdown of the projected water needs for low-income single family and multifamily units. The projected water demands shown here represent 37.5% of the projected water demand by customer type for single-family and multifamily categories provided in Table 2-4 above. For example, the total multifamily residential demand is projected to be 3,164 AFY in 2015 and 3,438 AFY in 2035. The projected water demands for housing needed for multifamily low-income households are 1,187 and 1,290 AFY for 2015 and 2035, respectively.

Table 2-12: Projected Water Demands for Housing Needed for Low-income Households (AFY)

Water Use Sector	Fiscal Year Ending				
	2015	2020	2025	2030	2035
Total Retail Demand	10,075	10,300	10,598	10,598	10,598
Total Residential Demand	5,938	6,063	6,212	6,212	6,212
Total Low-income Households Demand	2,229	2,275	2,331	2,331	2,331
SF Residential Demand - Total	2,774	2,774	2,774	2,774	2,774
SF Residential Demand - Low-income Households	1,041	1,041	1,041	1,041	1,041
MF Residential Demand - Total	3,164	3,289	3,438	3,438	3,438
MF Residential Demand - Low-income Households	1,187	1,234	1,290	1,290	1,290

3. Water Sources and Supply Reliability

3.1. Overview

ETWD has a modern water system, which dates back to 1960. Imported water from Metropolitan through MWDOC is ETWD's major source of water supply. The water system provides reliable water service to over 52,000 residents within its service area. Due to its underlying geology ETWD does not have any groundwater resources.

ETWD works together with two primary agencies – Metropolitan, and MWDOC to ensure a safe and high quality water supply, which will continue to serve the community in periods of drought and shortage. The sources of imported water supplies include the Colorado River and the State Water Project (SWP). Metropolitan's 2010 Integrated Water Resources Plan (IRP) update describes the core water resource strategy that will be used to meet full-service demands (non-interruptible agricultural and replenishment supplies) at the retail level under all foreseeable hydrologic conditions from 2015 through 2035. The imported water supply numbers shown here represent only the amount of supplies projected to meet demands and not the full supply capacity.

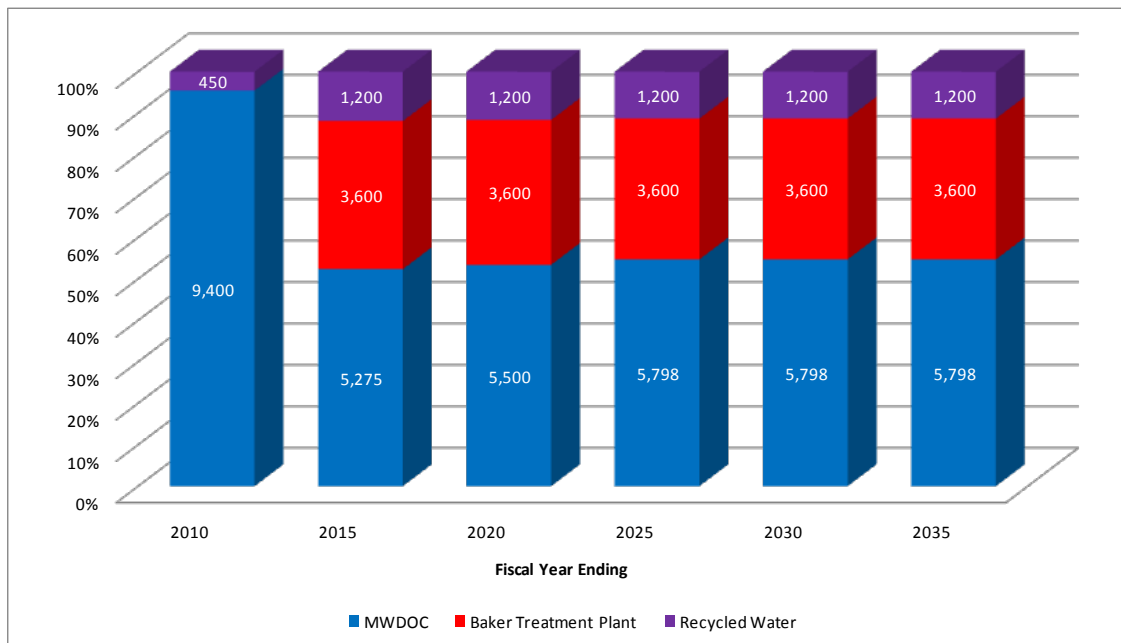


Figure 3-1: Current and Projected Water Supplies (AFY)

The following sections provide a detailed discussion of ETWD's water sources as well as projections to ETWD's future water supply portfolio for the next 25 years. Additionally, ETWD's projected supply and demand under various hydrological conditions are compared to determine ETWD's supply reliability for the 25 year planning horizon. This section satisfies the requirements of § 10631 (b) and (c), and 10635 of the Water Code.

3.2. Imported Water

ETWD currently relies on 9,400 AFY of imported water wholesaled by Metropolitan through MWDOC. Imported water represents approximately 96% of ETWD's total water supply. Metropolitan's principal sources of water originate from two sources - the Colorado River via the Colorado Aqueduct and the Lake Oroville watershed in Northern California through the State Water Project (SWP). This water is treated at the Robert B. Diemer Filtration Plant located north of Yorba Linda. Typically, the Diemer Filtration Plant receives a blend of Colorado River water from Lake Mathews through the Metropolitan Lower Feeder and SWP water through the Yorba Linda Feeder.

ETWD has a number of service connection agreements with MWDOC. These agreements entitle ETWD to receive water from available Metropolitan sources via the regional distribution system located in Orange County. MWDOC delivers water from Metropolitan in the amount requested by ETWD, subject to capacity limitations of the service connections and the capacity limits of ETWD in the Feeder. ETWD has three service connections to the Allen-McColloch Pipeline (AMP) and one service connection to the Joint Regional Water Supply System (JRWS) which is directly supplied from the East Orange County Feeder No.2 (EOCF #2) operated by Metropolitan. The total allocated capacity is 28.3 cfs. ETWD's imported water supply sources and their flow capacities are shown on the following Table 3-1.

Table 3-1: Imported Water Connections

Source	Connection Designation	Total Allocated Feeder capacity	Capacity of Connection
Metropolitan		CFS**	CFS**
Allen-McColloch	OC-76	26.3*	20
	OC-77		20
	OC-80		20
East Orange County Feeder No. 2		2.0	
Total Imported (Metropolitan)Capacity	28.3cfs or 20490 AFY		
Recycled Water Supplies	450 AFY		

* For determining the total capacity, either the total feeder capacity or the connection capacity, whichever is less, were utilized.

** CFS = Cubic-Feet per Second

Although pipeline capacity rights do not guarantee the availability of water, per se, they do guarantee the ability to convey water when it is available from Metropolitan sources to ETWD distribution system and, therefore, operate in tandem with water entitlements and/or contracts to receive supplemental water for purposes of demonstrating not only water supply reliability, but also physical delivery system reliability. All imported water supplies assumed in this document are available to ETWD from existing infrastructure.

Allen-McColloch Pipeline – The AMP is the primary source of domestic water in which ETWD owns specified capacity rights for the delivery of water. Metropolitan owns and operates the AMP. ETWD’s AMP capacity ownership, expressed as rate of flow, is 26.3 cubic feet per second (cfs) or 19,040 acre-feet per year. The Agreement for Sale and Purchase of Allen-McColloch Pipeline (Metropolitan Agreement No. 4623) among Metropolitan, MWDOC, MWDOC Water Facilities Corporation and certain other identified participants, including ETWD, dated July 1, 1994 (the AMP Sale Agreement) requires Metropolitan, among other things, to meet ETWD’s requests for water deliveries (subject to the availability of water from Metropolitan). The AMP Sale Agreement further requires Metropolitan to augment/increase capacity necessary to meet ETWD projected ultimate service area water demands and other undeveloped lands within ETWD.

East Orange County Feeder No. 2 – The East Orange County Feeder No. 2 (EOCF #2) is a pipeline jointly owned by several local agencies and Metropolitan, which operates it.

ETWD has 2 cfs, or 1450 acre-feet per year, of capacity rights in the JRWSS which is directly supplied from the EOCF #2 operated by Metropolitan.

Baker Water Treatment Plant – The Baker Water Treatment Plant is planned to be a new 28 million gallon per day plant at the existing Irvine Ranch Water District’s (IRWD) Baker Filtration Plant site in Lake Forest. The Baker Water Treatment Plant will treat imported untreated water from the Santiago Lateral and Irvine Lake through the Baker Pipeline. The proposed project would provide increased water supply reliability to southern Orange County by providing treated water to customers of IRWD, ETWD, Mouton Niguel Water District, Santa Margarita Water District and Trabuco Canyon Water District. It will also help provide a reliable local potable water supply in the event of emergency conditions or scheduled maintenance on the Metropolitan delivery system (Diemer Filtration Plant, Lower Feeder Pipeline or AMP). The Baker Water Treatment Plant is expected to come online by 2013. ETWD has a capacity right of approximately 3,600 AFY in the Baker Water Treatment Plant.

3.2.1. Metropolitan’s 2010 Regional Urban Water Management Plan

Metropolitan’s 2010 Regional Urban Water Management Plan (RUWMP) reports on its water reliability and identifies projected supplies to meet the long-term demand within its service area. It presents Metropolitan’s supply capacities from 2015 through 2035 under the three hydrologic conditions specified in the Act: single dry-year, multiple dry-years, and average year.

Colorado River Supplies

Colorado River Aqueduct supplies include supplies that would result from existing and committed programs and from implementation of the Quantification Settlement Agreement (QSA) and related agreements to transfer water from agricultural agencies to urban uses. Colorado River transactions are potentially available to supply additional water up to the CRA capacity of 1.25 MAF on an as-needed basis.

State Water Project Supplies

Metropolitan’s State Water Project (SWP) supplies have been impacted in recent years by restrictions on SWP operations in accordance with the biological opinions of the U.S. Fish and Wildlife Service and National Marine Fishery Service issued on December 15, 2008 and June 4, 2009, respectively. In dry, below-normal conditions, Metropolitan has increased the supplies received from the California Aqueduct by developing flexible Central Valley/SWP storage and transfer programs. The goal of the storage/transfer programs is to develop additional dry-year supplies that can be conveyed through the available Banks pumping capacity to maximize deliveries through the California Aqueduct during dry hydrologic conditions and regulatory restrictions.

In June 2007, Metropolitan's Board approved a Delta Action Plan that provides a framework for staff to pursue actions with other agencies and stakeholders to build a sustainable Delta and reduce conflicts between water supply conveyance and the environment. The Delta action plan aims to prioritize immediate short-term actions to stabilize the Delta while an ultimate solution is selected, and mid-term steps to maintain the Bay-Delta while the long-term solution is implemented.

State and federal resource agencies and various environmental and water user entities are currently engaged in the development of the Bay Delta Conservation Plan (BDCP), which is aimed at addressing the basic elements that include the Delta ecosystem restoration, water supply conveyance, and flood control protection and storage development. In evaluating the supply capabilities for the 2010 RUWMP, Metropolitan assumed a new Delta conveyance is fully operational by 2022 that would return supply reliability similar to 2005 condition, prior to supply restrictions imposed due to the Biological Opinions.

Storage

Storage is a major component of Metropolitan's dry year resource management strategy. Metropolitan's likelihood of having adequate supply capability to meet projected demands, without implementing its Water Supply Allocation Plan (WSAP), is dependent on its storage resources. In developing the supply capabilities for the 2010 RUWMP, Metropolitan assumed a simulated median storage level going into each of five-year increments based on the balances of supplies and demands.

Supply Reliability

Metropolitan evaluated supply reliability by projecting supply and demand conditions for the single- and multi-year drought cases based on conditions affecting the SWP (Metropolitan's largest and most variable supply). For this supply source, the single driest-year was 1977 and the three-year dry period was 1990-1992. Metropolitan's analyses are illustrated in Tables 3-2, 3-3, and 3-4 which correspond to Metropolitan's 2010 RUWMP's Tables 2-11, 2-9 and 2-10, respectively. These tables show that the region can provide reliable water supplies not only under normal conditions but also under both the single driest year and the multiple dry year hydrologies.

Table 3-2: Metropolitan Average Year Projected Supply Capability and Demands for 2015 to 2035

Average Year Supply Capability ¹ and Projected Demands Average of 1922-2004 Hydrologies (acre-feet per year)					
Forecast Year	2015	2020	2025	2030	2035
Current Programs					
In-Region Storage and Programs	685,000	931,000	1,076,000	964,000	830,000
California Aqueduct ²	1,550,000	1,629,000	1,763,000	1,733,000	1,734,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply ³	1,507,000	1,529,000	1,472,000	1,432,000	1,429,000
Aqueduct Capacity Limit ⁴	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Capability of Current Programs	3,485,000	3,810,000	4,089,000	3,947,000	3,814,000
Demands					
Firm Demands of Metropolitan	1,826,000	1,660,000	1,705,000	1,769,000	1,826,000
IID-SDCWA Transfers and Canal Linings	180,000	273,000	280,000	280,000	280,000
Total Demands on Metropolitan⁵	2,006,000	1,933,000	1,985,000	2,049,000	2,106,000
Surplus	1,479,000	1,877,000	2,104,000	1,898,000	1,708,000
Programs Under Development					
In-Region Storage and Programs	206,000	306,000	336,000	336,000	336,000
California Aqueduct	382,000	383,000	715,000	715,000	715,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply ³	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit ⁴	0	0	0	0	0
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	588,000	689,000	1,051,000	1,051,000	1,051,000
Potential Surplus	2,067,000	2,566,000	3,155,000	2,949,000	2,759,000

¹ Represents Supply Capability for resource programs under listed year type.

² California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

³ Colorado River Aqueduct includes water management programs, IID-SDCWA transfers and canal linings conveyed by the aqueduct.

⁴ Maximum CRA deliveries limited to 1.25 MAF including IID-SDCWA transfers and canal linings.

⁵ Firm demands are adjusted to include IID-SDCWA transfers and canal linings. These supplies are calculated as local supply, but need to be shown for the purposes of CRA capacity limit calculations without double counting.

Table 3-3: Metropolitan Single-Dry Year Projected Supply Capability and Demands for 2015 to 2035

**Single Dry-Year
Supply Capability¹ and Projected Demands
Repeat of 1977 Hydrology
(acre-feet per year)**

Forecast Year	2015	2020	2025	2030	2035
Current Programs					
In-Region Storage and Programs	685,000	931,000	1,076,000	964,000	830,000
California Aqueduct ²	522,000	601,000	651,000	609,000	610,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply ³	1,416,000	1,824,000	1,669,000	1,419,000	1,419,000
Aqueduct Capacity Limit ⁴	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Capability of Current Programs	2,457,000	2,782,000	2,977,000	2,823,000	2,690,000
Demands					
Firm Demands of Metropolitan	1,991,000	1,889,000	1,921,000	1,974,000	2,039,000
IID-SDCWA Transfers and Canal Linings	180,000	273,000	280,000	280,000	280,000
Total Demands on Metropolitan⁵	2,171,000	2,162,000	2,201,000	2,254,000	2,319,000
Surplus	286,000	620,000	776,000	569,000	371,000
Programs Under Development					
In-Region Storage and Programs	206,000	306,000	336,000	336,000	336,000
California Aqueduct	556,000	556,000	700,000	700,000	700,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply ³	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit ⁴	0	0	0	0	0
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	762,000	862,000	1,036,000	1,036,000	1,036,000
Potential Surplus	1,048,000	1,482,000	1,812,000	1,605,000	1,407,000

¹ Represents Supply Capability for resource programs under listed year type.

² California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

³ Colorado River Aqueduct includes water management programs, IID-SDCWA transfers and canal linings conveyed by the aqueduct.

⁴ Maximum CRA deliveries limited to 1.25 MAF including IID-SDCWA transfers and canal linings.

⁵ Firm demands are adjusted to include IID-SDCWA transfers and canal linings. These supplies are calculated as local supply, but need to be shown for the purposes of CRA capacity limit calculations without double counting.

Table 3-4: Metropolitan Multiple-Dry Year Projected Supply Capability and Demands for 2015 to 2035

<p style="text-align: center;">Multiple Dry-Year Supply Capability¹ and Projected Demands Repeat of 1990-1992 Hydrology (acre-feet per year)</p>					
Forecast Year	2015	2020	2025	2030	2035
Current Programs					
In-Region Storage and Programs	246,000	373,000	435,000	398,000	353,000
California Aqueduct ²	752,000	794,000	835,000	811,000	812,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply ³	1,318,000	1,600,000	1,417,000	1,416,000	1,416,000
Aqueduct Capacity Limit ⁴	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Capability of Current Programs	2,248,000	2,417,000	2,520,000	2,459,000	2,415,000
Demands					
Firm Demands of Metropolitan	2,056,000	1,947,000	2,003,000	2,059,000	2,119,000
IID-SDCWA Transfers and Canal Linings	180,000	241,000	280,000	280,000	280,000
Total Demands on Metropolitan⁵	2,236,000	2,188,000	2,283,000	2,339,000	2,399,000
Surplus	12,000	229,000	237,000	120,000	16,000
Programs Under Development					
In-Region Storage and Programs	162,000	280,000	314,000	336,000	336,000
California Aqueduct	242,000	273,000	419,000	419,000	419,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply ³	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit ⁴	0	0	0	0	0
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	404,000	553,000	733,000	755,000	755,000
Potential Surplus	416,000	782,000	970,000	875,000	771,000

¹ Represents Supply Capability for resource programs under listed year type.

² California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

³ Colorado River Aqueduct includes water management programs, IID-SDCWA transfers and canal linings conveyed by the aqueduct.

⁴ Maximum CRA deliveries limited to 1.25 MAF including IID-SDCWA transfers and canal linings.

⁵ Firm demands are adjusted to include IID-SDCWA transfers and canal linings. These supplies are calculated as local supply, but need to be shown for the purposes of CRA capacity limit calculations without double counting.

3.2.2. ETWD's Imported Water Supply Projections

Based on Metropolitan's supply projections that it will be able to meet full service demands under all three hydrologic scenarios, MWDOC, Orange County's wholesale supplier projects that it would also be able to meet the demands of its retail agencies under these conditions.

California Water Code section 10631 (k) requires the wholesale agency to provide information to the urban retail water supplier for inclusion in its UWMP that identifies and quantifies the existing and planned sources of water available from the wholesale agency. Table 3-5 presents the wholesaler's water availability projections by source for the next 25 years as provided to ETWD by MWDOC. The water supply projections shown in Table 3-5 represent the amount of supplies projected to meet demands. They do not represent the full supply capacity.

Table 3-5: Wholesaler Identified & Quantified Existing and Planned Sources of Water (AFY)

Wholesaler Sources	Fiscal Year Ending				
	2015	2020	2025	2030	2035-opt
MWDOC	8,875	9,100	9,398	9,398	9,398

3.3. Recycled Water

One of the major components of ETWD's water conservation program is its recycled water program. ETWD provides additional treatment to a portion of its secondary treated wastewater, rather than discharging it to the ocean, and is used for landscape irrigation services. ETWD's recycled water program is more fully described in Section 6.

3.4. Supply Reliability

3.4.1. Overview

It is required that every urban water supplier assess the reliability to provide water service to its customers under normal, dry, and multiple dry water years. ETWD depends on a combination of imported and local supplies to meet its water demands and has taken numerous steps to ensure it has adequate supplies. Development of potential groundwater, recycled water system, and desalination opportunities (Section 7) may augment the reliability of the imported water system. There are various factors that may impact reliability of supplies such as legal, environmental, water quality and climatic which are discussed below. The water supplies are projected to meet full-service demands; Metropolitan's 2010 RUWMP finds that Metropolitan is able to meet with existing supplies, full-service demands of its member agencies starting 2015 through 2035 during normal years, single dry year, and multiple dry years.

Metropolitan’s 2010 Integrated Water Resources Plan (IRP) update describes the core water resource strategy that will be used to meet full-service demands at the retail level under all foreseeable hydrologic conditions from 2015 through 2035. The foundation of Metropolitan’s resource strategy for achieving regional water supply reliability has been to develop and implement water resources programs and activities through its IRP preferred resource mix. This preferred resource mix includes conservation, local resources such as water recycling and groundwater recovery, Colorado River supplies and transfers, SWP supplies and transfers, in-region surface reservoir storage, in-region groundwater storage, out-of-region banking, treatment, conveyance and infrastructure improvements. MWDOC is reliant on Metropolitan for all of its imported water. With the addition of planned supplies under development, Metropolitan’s 2010 RUWMP finds that Metropolitan will be able to meet full-service demands from 2015 through 2035, even under a repeat of the worst drought. Table 3-6 shows the reliability of the wholesaler’s supply for single dry year and multiple dry year scenarios.

Table 3-6: Wholesaler Supply Reliability - % of Normal AFY

Wholesaler Sources	Single Dry	Multiple Dry Water Years		
		Year 1	Year 2	Year 3
MWDOC	100%	100%	100%	100%

In addition to meeting full-service demands from 2015 through 2035, Metropolitan projects reserve and replenishment supplies to refill system storage. MWDOC’s 2010 RUWMP states that it will meet full-service demands to its customers from 2015 through 2035. Table 3-7 shows the basis of water year data used to predict drought supply availability.

Table 3-7: Basis of Water Year Data

Water Year Type	Base Year	Base Year	Base Year
Normal Water Year	Average 1922-2004		
Single-Dry Water Year	1977		
Multiple-Dry Water Years	1990	1991	1992

3.4.2. Factors Impacting Reliability

The Act requires a description of the reliability of the water supply and vulnerability to seasonal or climatic shortage. ETWD relies on import supplies provided by Metropolitan through MWDOC. The following are some of the factors identified by Metropolitan that may have an impact on the reliability of Metropolitan supplies.

Environment – Endangered species protection needs in the Sacramento-San Joaquin River Delta have resulted in operational constraints to the SWP system. The Bay-Delta’s declining ecosystem caused by agricultural runoff, operation of water pumps and other factors has led to historical restrictions in SWP supply deliveries. SWP delivery restrictions due to the biological opinions resulted in the loss of about one-third of the available SWP supplies in 2008.

Legal – Listings of additional species under the Endangered Species Act and new regulatory requirements could impact SWP operations by requiring additional export reductions, releases of additional water from storage or other operational changes impacting water supply operations. Additionally, the Quantification Settlement Agreement has been challenged in courts and may have impacts on the Imperial Irrigation District and San Diego County Water Authority transfer. If there are negative impacts, San Diego could become more dependent on the Metropolitan supplies.

Water Quality –Water imported from the Colorado River Aqueduct (CRA) contains a high level of salts. The operational constraint is that this water needs to be blended with SWP supplies to meet the target salinity of 500 mg/L of total dissolved solids (TDS). Due to recent restrictions in pumping of SWP supplies the water delivered to ETWD has often exceeded the 500 mg/l TDS target. Another water quality concern is related to the quagga mussel. Controlling the spread and impacts of quagga mussels within the Colorado River Aqueduct requires extensive maintenance and results in reduced operational flexibility.

Climate Change – Changing climate patterns are expected to shift precipitation patterns and affect water supply. Unpredictable weather patterns will make water supply planning even more challenging. The areas of concern for California include the reduction in Sierra Nevada snowpack, increased intensity and frequency of extreme weather events, and rising sea levels causing increased risk of levee failure.

Legal, environmental, and water quality issues may have impacts on Metropolitan supplies. It is felt, however, that climatic factors would have more of an impact than the others. Climatic conditions have been projected based on historical patterns; however severe pattern changes may occur in the future. Table 3-8 shows the factors resulting in inconsistency of supply.

Table 3-8: Factors Resulting in Inconsistency of Supply

Name of Supply	Legal	Environmental	Water Quality	Climatic
State Water Project	X	X		
Colorado River			X	X

These and other factors are addressed in greater detail in Metropolitan's 2010 RUWMP.

3.4.2.1. Water Quality

Imported Water - Metropolitan is responsible for providing water of a high quality throughout its service area. The water that Metropolitan delivers is tested both for currently regulated contaminants and for additional contaminants of concern as over 300,000 water quality tests are conducted each year to regulate the safety of its waters. Metropolitan's supplies originate primarily from the Colorado River Aqueduct (CRA) and from the State Water Project (SWP). A blend of these two sources, proportional to each year's availability of the source, is then delivered throughout Metropolitan's service area.

Metropolitan's primary sources face individual water quality issues of concern. The CRA water source contains a higher level of total dissolved solids (TDS) and a lower level of organic material while the SWP contains a lower TDS level while its level of organic materials is much higher, leading to the formation of disinfection byproducts. To remediate the CRA's high level of salinity and the SWP's high level of organic materials, Metropolitan has been blending CRA water with SWP supplies as well as implementing updated treatment processes to decrease the disinfection byproducts. In addition, Metropolitan has been engaged in efforts to protect its Colorado River supplies from threats of uranium, perchlorate, and chromium VI while also investigating the potential water quality impact of emerging contaminants, N-nitrosodimethylamine (NDMA) and pharmaceuticals and personal care products (PPCPs). Metropolitan has assured its ability to overcome the above mentioned water quality concerns through its protection of source waters, implementation of renovated treatment processes, and blending of its two sources. While unforeseeable water quality issues could alter reliability, Metropolitan's current strategies ensure the deliverability of high quality water.

Table 3-9 shows the impact in acre-feet per year that water quality would have on supply.

Table 3-9: Water Quality – Current and Projected Water Supply Impacts (AFY)

Water Source	Fiscal Year Ending					
	2010	2015	2020	2025	2030	2035-opt
Imported	0	0	0	0	0	0
Local	0	0	0	0	0	0

3.4.3. Normal-Year Reliability Comparison

ETWD has entitlements and/or written contracts to receive imported water from Metropolitan via the regional distribution system. Although pipeline capacity rights do not guarantee the availability of water, per se, they do guarantee the ability to convey water when it is available to the Metropolitan distribution system. All imported water

supplies assumed in this section are available to ETWD from existing water transmission facilities. Table 3-10 shows supply and demand under normal year conditions. Additional water supplies are projected to be available from Metropolitan, but are not included here since projected supplies meet projected demands.

Table 3-10: Projected Normal Water Supply and Demand (AFY)

	Fiscal Year Ending				
	2015	2020	2025	2030	2035
Total Demand	10,075	10,300	10,598	10,598	10,598
Recycled Water	1,200	1,200	1,200	1,200	1,200
Imported	8,875	9,100	9,398	9,398	9,398
Total Supply	10,075	10,300	10,598	10,598	10,598

3.4.4. Single Dry-Year Reliability Comparison

ETWD has documented that it is 100% reliable for single dry year demands from 2015 through 2035 with a demand increase of 7.5% using FY 2002-03 as the single dry year. Table 3-11 compiles supply and demand projections for a single dry water year. The available imported supply is greater than shown; however, it is not included because all demands are met.

Table 3-11: Projected Single-Dry Year Water Supply and Demand (AFY)

	Fiscal Year Ending				
	2015	2020	2025	2030	2035
Total Demand	10,841	11,083	11,403	11,403	11,403
Recycled Water	1,200	1,200	1,200	1,200	1,200
Imported	9,641	9,883	10,203	10,203	10,203
Total Supply	10,841	11,083	11,403	11,403	11,403

3.4.5. Multiple Dry-Year Reliability Comparison

ETWD is capable of providing their customers all their demands with significant reserves in multiple dry years from 2015 through 2035 with a demand increase of 7.5% using FY 2002-03 as the multiple dry years. This is true even if the demand projections were to be increased by a large margin. Table 3-12 shows supply and demand projections under multiple dry year conditions.

Table 3-12: Projected Multiple Dry Year Period Supply and Demand (AFY)

		Fiscal Year Ending				
		2015	2020	2025	2030	2035
First Year Supply	Total Demand	10,841	11,083	11,403	11,403	11,403
	Recycled Water	1,200	1,200	1,200	1,200	1,200
	Imported	9,641	9,883	10,203	10,203	10,203
	Total Supply	10,841	11,083	11,403	11,403	11,403
Second Year Supply	Total Demand	10,841	11,083	11,403	11,403	11,403
	Recycled Water	1,200	1,200	1,200	1,200	1,200
	Imported	9,641	9,883	10,203	10,203	10,203
	Total Supply	10,841	11,083	11,403	11,403	11,403
Third Year Supply	Total Demand	10,841	11,083	11,403	11,403	11,403
	Recycled Water	1,200	1,200	1,200	1,200	1,200
	Imported	9,641	9,883	10,203	10,203	10,203
	Total Supply	10,841	11,083	11,403	11,403	11,403

4. Demand Management Measures

4.1. Overview

Water conservation, often called demand-side management, can be defined as practices, techniques, and technologies that improve the efficiency of water use. Such practices are referred to as demand management measures (DMM). Increased efficiency expands the use of the water resource, freeing up water supplies for other uses, such as population growth, new industry, and environmental conservation.

The increasing efforts in water conservation are spurred by a number of factors: growing competition for limited supplies, increasing costs and difficulties in developing new supplies, optimization of existing facilities, delay of capital investments in capacity expansion, and growing public support for the conservation of limited natural resources and adequate water supplies to preserve environmental integrity.

ETWD recognizes the importance of water conservation and has made water use efficiency an integral part of water use planning. ETWD has been a signatory to the California Urban Water Conservation Council's (CUWCC) Best Management Practices (BMPs) Memorandum of Understanding (MOU) since September 15, 1994. Demand Management Measures as defined by the Act corresponds to the CUWCC's BMPs. ETWD is currently implementing all 14 DMMs described in the Act.

This section of the UWMP satisfies the requirements of § 10631 (f) & (j). It describes how each DMM is being implemented by ETWD and how ETWD evaluates the effectiveness of the DMMs implemented. This section also provides an estimate of existing conservation savings where information is available.

4.2. Water Use Efficiency Programs

As Signatory to the CUWCC MOU, ETWD has committed to use good-faith efforts to implement the 14 cost-effective BMPs. ETWD has implemented and is actively participating in many water conservation activities. A Water Conservation and Water Supply Shortage Ordinance was adopted by ETWD's Board of Directors in 2010 as Ordinance No. 2010-1 which replaces ETWD's Water Shortage Contingency Plan Ordinance No. 2009-1. The ordinance is addressed in more detail in Section 5 Water Supplies Contingency Plan.

Moreover, as a member agency of MWDOC, ETWD actively participates in various Metropolitan residential and CII rebate programs, as well as school and public education

and outreach programs, and other programs administered by MWDOC. MWDOC implements many of the urban water conservation BMPs on behalf of its member agencies. MWDOC's 2010 RUWMP should be referred to for a detailed discussion of each regional BMP program. ETWD works cooperatively with MWDOC for technical and financial support needed to facilitate meeting the terms of the MOU. MWDOC's current Water Use Efficiency Program, detailed in their 2010 RUWMP, implemented on behalf of its member agencies following three basic focuses:

1. Regional Program Development – MWDOC develops, obtains funding for, and implements regional BMP programs on behalf of all retail water agencies in Orange County.
2. Local Program Assistance - MWDOC assists retail agencies to develop and implement local programs within their individual service areas.
3. Research and Evaluation – MWDOC conducts research programs which allow an agency to measure the water savings benefits of a specific program and then compare those benefits to the costs of implementing the program in order to evaluate the economic feasibility of the program.

Table 4-1 provides an overview of ETWD's DMM program status.

Table 4-1: Urban Supplier's Demand Management Measures Overview

Demand Management Measure (DMM)	DMM Status		
	Past	Current	Future
Residential Water Surveys		X	
Residential Plumbing Retrofits		X	
System Water Audits, Leak Detection and Repair		X	
Metering with Commodity Rates		X	
Large Landscape Conservation Programs		X	
High-Efficiency Washing Machine Rebates		X	
Public Information Programs		X	
School Education Programs		X	
Commercial, Industrial and Institutional Programs		X	
Wholesale Agency Assistance		N/A	
Conservation Pricing		X	
Conservation Coordinator		X	
Water Waste Prohibition		X	
Residential ULFT Replacement Programs	X		

4.2.1. DMM 1: Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers

ETWD has completed the formal survey program for single-family residences in which a qualified technician checked water–using devices within single and multi–family homes to evaluate indoor and outdoor water use. ETWD has phased out the formal survey program and currently conducts residential survey on an as-needed basis. When a high bill complaint is received, staff is sent out to conduct an audit. ETWD also participates in regional landscape programs aimed at helping residential and small commercial customers to be more water efficient through MWDOC. A thorough site inspection that includes a landscape survey is conducted as part of the Smart Timer and Rotating Nozzle Rebate Programs. Details of these residential landscape water use efficiency programs are provided below.

Smart Timer Rebate Program - The Smart Timer Rebate Program started in FY 2004/05. Under this regional program, residential and commercial properties, including HOA common areas, are eligible for a rebate when they purchase and install a weather-based irrigation controller which has the potential to save 41 gallons per day per residence and reduce runoff and pollution by 49%. Once residents are enrolled in the rebate program, a detailed residential outdoor water survey is conducted to inspect the irrigation system, distribution uniformity, and irrigated area. Water savings from the program can be estimated from information obtained from the water surveys pre- and post-installation of the Smart Timer. To date, 17 rebates have been given out to residential customers and 312 rebates to commercial customers within ETWD’s service area which translate to a water savings of 757.7 acre-feet, collectively. As part of the MWDOC Grant for the smart timers, a site audit and inspection is required and provided by contract through MWDOC.

Rotating Nozzle Rebate Program – This rebate program started in 2007 and is offered to both residential and commercial customers. Through this program, site owners will purchase and install rotary nozzles in existing irrigation systems. Following the submittal of a rebate application, water bill, and original purchase receipt, MWDOC will direct a third party installation verification contractor to perform installation verifications on up to 100% of the sites that installed devices. To date, within ETWD’s service area, 233 rotating nozzles have been installed at residential properties and another 3,584 at small commercial and 890 at large commercial properties representing a combined water savings of 96 acre-feet since the beginning of the program.

Synthetic Turf Rebate Program – Through this program, residential and small commercial customers of participating retail water agencies are eligible to receive rebate money for qualifying synthetic turf projects. To date 9,465 sq. ft. of turf grass have been replaced by synthetic turf on residential properties translating to a water savings of 3.96 acre-feet since the beginning of the program.

California Friendly Landscape Training (Residential) - The California Friendly Landscape Training provides education to residential homeowners and professional landscape contractors on a variety of landscape water efficiency practices they can employ. These classes are hosted by MWDOC and/or the retail agencies to encourage participation across the county. The residential training program consists of either a half-day Mini Class or individual, topic-specific, four-hour classes.

4.2.2. DMM 2: Residential Plumbing Retrofit

ETWD participated in Metropolitan's showerhead distribution program which began in 1991. To determine whether the 75% saturation requirement was achieved within Orange County, the *Orange County Saturation Study* was conducted by MWDOC and Metropolitan in 2001. Data was obtained through telephone surveys and on-site inspections. Using the saturation findings of the study, MWDOC estimates that today low flow showerhead saturation is at nearly 100% for single-family homes and at 94% for multi-family homes. As a benchmark, the numbers of ETWD's pre-1992 single-family and multi-family accounts were 7,664 and 16,879, respectively. ETWD has met the CUWCC BMP coverage requirements for this BMP.

Additionally, ETWD participated in MWDOC's regional ultra low flow toilet (ULFT) rebate program which ended in 2009. A total of 6,281 ULFTs were distributed under this program to single-family and multi-family homes representing a cumulative water savings of 2,675 acre-feet.

4.2.3. DMM 3: System Water Audits, Leak Detection and Repair

ETWD started performing distribution system prescreening audit in 1999. The prescreening audit results were used to determine the need for a full-scale system audit. The prescreening system audit involves determining 1) metered sales, 2) total supply into the system, and 3) other system verifiable uses. If the quantity of metered sales plus other verifiable uses divided by total supply into the system is less than 0.9 then a full-scale system audit is required. Since ETWD's unaccounted for water has only been around 3% or less, full-scale system audit was not required. ETWD has met the CUWCC BMP coverage requirements of BMP 3.

4.2.4. DMM 4: Metering with Commodity Rates

All of ETWD customer accounts are metered. All new services are billed monthly by volume. A tiered rate structure was recently introduced for residential and irrigation accounts in July 2010. All other customer classes retain the existing uniform rate structure. ETWD's current rate structures are described in more detail in Section 4.2.11.

4.2.5. DMM 5: Large Landscape Conservation Programs and Incentives

ETWD began offering landscape water use surveys to CII customers with mixed-used meters in 2005. As of 2008, 45% of all mixed use meter accounts have been surveyed.

ETWD also participates in large landscape conservation through MWDOC's regional programs. MWDOC offers several landscape water use efficiency program aimed at both residential and commercial customers as described under DMM 1. MWDOC also offers programs in Orange County to specifically assist retail agencies and their large landscape customers to use water efficiently as follows:

Landscape Performance Certification Program (LPCP) – This is a MWDOC-administered program which started in 2004. The LPCP program is a free water management training program sponsored by MWDOC and Metropolitan and offered to CII customers with dedicated irrigation meters. The program also helps create site specific water budgets and track monthly water use for each participating site. As of FY 2010-11, a total of 372 landscape meters are participating in this program. To date, the overall water savings is 1,261 acre-feet.

California Friendly Landscape Training (Professional) - The California Friendly Landscape Training provides education to residential homeowners and professional landscape contractors on a variety of landscape water efficiency practices they can employ. These classes are hosted by MWDOC and/or the retail agencies to encourage participation across the county. The Professional Training Program course consists of four consecutive classes in landscape water management, each building upon principles presented in the preceding class. Each participant receives a bound handbook containing educational materials for each class. These classes are offered throughout the year and taught in both English and Spanish languages.

In addition, ETWD takes advantage of regional and local efforts which target and market to large landscape properties including bill inserts, direct marketing efforts, ads in various publications, educational seminars/symposiums for property owners, and presentations at Homeowners Associations (HOAs) board meetings.

4.2.6. DMM 6: High-Efficiency Washing Machine Rebate Programs

ETWD participates in the SoCal Water Smart residential rebate program offered by Metropolitan. This program offers financial incentives to single-family and multifamily residential customers through the form of a rebate.

Orange County residents are eligible to receive an \$85 rebate when they purchase of a new High Efficiency Clothes Washer (HECW). This program began in 2001 and is sponsored by MWDOC, Metropolitan, and local retail water agencies. Rebates are available on a first-come, first-served basis, while funds last. Metropolitan recently ended this program in 2011. Applications must have been postmarked by December 6, 2010 to qualify for a rebate. Participants must be willing to allow an inspection of the installed machine for verification of program compliance. To qualify for a rebate, the HECW must have a water factor of 4.0 or less. An HECW with a water factor of 4 will

use approximately 15 gallons of water per load compared to a conventional top-loading clothes washer which can use 40 gallons or more per load. Depending on use, these machines can save 10,000 gallons of water per year. Participants are encouraged to contact their local gas and/or electric utility as additional rebates may be available.

As of FY 2010-11, ETWD has given out 785 high-efficiency washing machine rebates to its customers. This equates to a water savings of 96 acre-feet over the program's lifetime.

4.2.7. DMM 7: Public Information Programs

Wholesaler and retailer both materially participate in the public information program. ETWD's public information program consists of the following activities:

- 1) Conservation messages on consumer water bills,
- 2) Informational brochures consisting of Metropolitan/MWDOC literature available at ETWD's office,
- 3) Monthly appearances by ETWD Board members on local cable TV to address water issues,
- 4) Periodic distribution of pamphlets offering water conservation tips,
- 5) Presentations to community groups addressing water supply, water quality, and water conservation issues (speakers bureau),
- 6) Meetings with large-scale irrigators such as HOAs, Management Groups and County Landscape Maintenance Supervisors to encourage elimination of slope runoff, and inefficient and/or excessive water use,
- 7) Presenting previous consumption data on current billings, and
- 8) Participation at special events (fairs, festivals and forums).

MWDOC currently offer a wide range of public information programs in Orange County in collaboration with its member agencies including ETWD. Current regional public information programs within the MWDOC's service area are summarized below.

Water Facility Inspection Trip Program - The inspection trip program is sponsored by MWDOC and Metropolitan. Each year, Orange County elected officials, residents, business owners, and community leaders are invited to attend educational inspection trips to tour key water facilities throughout the state of California. The goal is to educate members of our community about planning, procurement and management of southern California's water supply and the issues surrounding delivery and management of this vital resource.

O.C. Water Hero Program - The goal of this program is to engage children in water use efficiency activities while facilitating discussion with friends and family members about how to save water. Any Orange County child can become a Water Hero by pledging to save 20 gallons of water per day. In exchange for their pledge, they receive a free Water Hero kit, which includes a variety of fun, water-saving items like a 5-minute shower

timer and “fix-it” ticket pad for busting water wasters. To become a Superhero, a student must get their parents to also pledge to save 20 gallons of water per day. To date, more than 13,000 children in Orange County have become Water Heroes and more than 4,000 have become Superheroes.

eCurrents - This monthly electronic newsletter is designed to keep MWDOC’s 28 member agencies, residents and businesses, stakeholder groups, opinion leaders, and others apprised of MWDOC news, programs, events, and activities. The publication also serves to keep readers informed about regional, state, and federal issues affecting water supply, water management, water quality, and water policy and regulation.

Water Advisory Committee of Orange County (WACO) - WACO was formed in 1983 to facilitate the introduction, discussion, and debate of current and emerging water issues among Orange County policymakers and water professionals. The committee’s membership has evolved to include elected officials and management staff from Orange County cities and water districts, engineers, attorneys, consultants, and other industry professionals. Monthly meetings are open to the public and are typically held on the first Friday of each month at 7:30 a.m.

4.2.8. DMM 8: School Education Programs

ETWD participates in the water awareness school education programs sponsored by MWDOC. MWDOC’s regional water education program began in 1973 and provides water education to Orange County students in grades kindergarten through high school. The program teaches students about the water cycle, the importance and value of water and water conservation. While it is not feasible for ETWD to evaluate the water savings of this DMM, ETWD will continue to consider this DMM as vital and necessary.

One of the most successful and well-recognized water education curriculums in Southern California is MWDOC’s Water Education School Program. For more than 30 years, School Program mascot “Ricki the Rambunctious Raindrop” has been educating students in grades K-5 about the water cycle, the importance and value of water, and the personal responsibility we all have as environmental stewards.

The School Program features assembly-style presentations that are grade-specific and performed on-site at the schools. The program curriculum is aligned with the science content standards established by the State of California. Since its inception in 1973, nearly three million Orange County students have been educated through the School Program.

In 2004, MWDOC formed an exciting partnership with Discovery Science Center that has allowed both organizations to reach more Orange County students each year and provide them with even greater educational experiences in the areas of water and science.

Discovery Science Center currently serves as the School Program administrator, handling all of the program marketing, bookings, and program implementation. During the 2010-11 school year, more than 70,000 Orange County students will be educated through the program.

4.2.9. DMM 9: Conservation Programs for Commercial, Industrial and Institutional Accounts

ETWD has met the CUWCC BMP requirement for ranking consumption by CII accounts, with the understanding that ETWD has no industrial accounts. While, ETWD has not conducted surveys, it continues to work with MWDOC to assess the cost effectiveness of CII surveys.

ETWD offers financial incentives under the Save Water Save A Buck Rebate Program which offers rebates for various water efficient devices to CII customers. ETWD also participates in MWDOC's Water Smart Hotel Program as described below.

Save Water Save a Buck – This program began in 2002 and offers rebates to assist commercial, industrial, and institutional customers in replacing high-flow plumbing fixtures with low-flow fixtures. Facilities where low-flow devices are installed must be located in Orange County. Rebates are available only on those devices listed in Table 4-2 below and must replace higher water use devices. Installation of devices is the responsibility of each participant. Participants may purchase and install as many of the water saving devices as is applicable to their site.

Table 4-2: Retrofit Devices and Rebate Amounts Available Under Save Water Save a Buck Program

Retrofit Device	Rebate Amount
High Efficiency Toilet	\$50
Ultra-Low-Water or Zero Water Urinal	\$200
Connectionless Food Steamers	\$485 per compartment
Air-Cooled Ice Machines (Tier III)	\$300
Cooling Tower Conductivity Controller	\$625
pH / Conductivity Controller	\$1,750
Dry Vacuum Pumps	\$125 per HP
Water Pressurized Broom	\$110

As of FY 2010/11, ETWD's CII customers have installed a total 403 water-saving fixtures representing a water savings of 223 acre-feet. ETWD will continue to educate CII customers to meet the DMM requirements.

Water Smart Hotel Program – In 2008 and 2009, MWDOC received grants from DWR and the US Bureau of Reclamation to conduct the Water Smart Hotel Program, a program designed to provide Orange County hotels and motels with commercial and landscape water saving surveys, incentives for retrofits and customer follow-up and support. The goal of the program is to implement water use efficiency changes in hotels to achieve an anticipated water savings of 7,078 acre feet over 10 years.

The Program is offered to hotels in MWDOC's service area as identified by retail water agencies. It is anticipated that detailed survey of the indoor and outdoor water using aspects of up to 105 participating hotels will be performed. Participating hotels will receive survey reports that recommend indoor and outdoor retrofits, upgrades, and other changes that should, based on the survey, result in significant water savings. Quantities of each device and associated fixture and installation costs, water savings and payback information (based on rebate amount Incentives offered through the Save Water Save A Buck Rebate Program will be augmented using DWR and USBR Water Use Efficiency grant funds to bridge the gap between existing incentives and the actual costs of Hotel Water Survey recommendations. To date, over 24 surveys have been performed county-wide, and over 9,500 water-saving devices have been installed through the program. These devices are saving 351 acre feet per year or 3,510 acre feet over the ten year device life.

4.2.10. DMM 10: Wholesale Agency Programs

This BMP pertains to wholesale agency programs which are not applicable to ETWD, a retail agency. ETWD is a member agency of MWDOC, the region's wholesaler that is responsible for the implementation and reporting requirements of this DMM.

4.2.11. DMM 11: Conservation Pricing

ETWD has been using uniform rate structure for all customer classes. An increasing block tiered rate structure was recently introduced for residential and irrigation accounts in July 2010. All other customer classes retain the existing uniform rate structure. The tier definitions are tailored to the unique consumption patterns of ETWD's customers. The rate structure consists of four tiers. Tier 1 allotment is reserved for efficient indoor use and Tier 2 for efficient outdoor use. Usage above an efficient level is subject to higher charges under Tiers 3 and 4 to fund conservation programs and other supplemental water supply programs.

The main difference between residential accounts and irrigation accounts is that irrigation accounts do not have a Tier 1 allotment which is reserved for indoor use. All customer

classes have their Tier 3 allotment defined as 30% of their respective total water budget. The higher Tier 3 rate serves as warning for inefficient use before incurring heavy penalty for excessive use in Tier 4. Current water rates are shown in Table 4-3.

Table 4-3: ETWD's 2011 Tiered Water Rates

Water Usage Charges	Rates
Tier I – Indoor - Efficient	\$1.80/CCF
Tier II – Outdoor - Efficient	\$2.20/CCF
Tier III – Inefficient	\$4.38/CCF
Tier IV – Excessive	\$5.94/CCF
CII	\$2.03/CCF

ETWD has not conducted an evaluation of the water savings attributable to this DMM, however, ETWD will continue to make customers aware of the rate structure and use it as a tool to affect water conservation.

4.2.12. DMM 12: Water Conservation Coordinator

ETWD employs a Customer Service Manager who serves as a conservation coordinator a quarter of the time. The position was created in 1995. The responsibilities of the Customer Service Manager include coordinating and working closely with ETWD's customers, MWDOC, Metropolitan, CUWCC, and others.

4.2.13. DMM 13: Water Waste Prohibition

ETWD's Board recently adopted a Water Conservation Water Supply Shortage Ordinance No. 2010-1 under Resolution No. 10-11-2 (Appendix D). The ordinance identifies permanent mandatory water conservation measures which are to be in effect at all times. These include limits on landscape irrigation, obligation to fix leaks and breaks in the water user's distribution system, no hosing down paved surfaces, for example.

The ordinance also institutes three levels of water supply shortage and actions to be taken by ETWD at each level of shortages. Section 5 describes the water shortage ordinance and the stages of action in more detail.

4.2.14. DMM 14: Residential Ultra-Low-Flush Toilet Replacement Programs

Over the past 19 years, MWDOC has continuously implemented a regional ULFT Rebate and/or Distribution Program targeting single- and multi-family homes in Orange County. Since the end of distribution program in 2004, MWDOC's program has focused solely on providing rebate incentives for retrofitting non-efficient devices with either ULFTs or High Efficiency Toilets (HETS) – toilets using 1.28 gallons per flush or less. The ULFT portion of this program concluded in June 2009, and over 360,000 ULFTs were replaced

in single family and multi-family homes, with an overall program to date savings of approximately 138,457 acre feet of water. The HET rebate program, which concluded in 2010, has incentivized over 26,000 devices, with an overall program to date savings of approximately 3,419 acre-feet.

ETWD has participated in this program from the beginning. To date 6,281 ULFTs and 534 HETs have been installed representing a combined water savings of 2,775 acre-feet. ETWD has met the CUWCC BMP coverage requirements for this DMM.

5. Water Supplies Contingency Plan

5.1. Overview

Imported Water Shortages

A combination of water supply challenges have threatened access to the imported supplies necessary to meet Southern California's water demands in the coming years. Critically dry conditions in the western United States, including the Colorado River experiencing the driest time in over a century, as well as the federal court ruling in late 2007 to protect the Delta Smelt in the Sacramento-San Joaquin River Delta which brought uncertainty about future pumping operations from the State Water Project, all contribute to the region's water supply challenges.

In preparing for the possibility of not meeting firm demands of its member agencies, Metropolitan's Board adopted the Water Supply Allocation Plan in February 2008, subsequently updated in June 2009. Metropolitan's plan includes the specific formula for calculating member agency supply allocations and the key implementation elements needed for administering an allocation. The Water Supply Allocation Plan is the foundation for the urban water shortage contingency analysis required under Water Code Section 10632 and is part of Metropolitan's RUWMP.

Metropolitan's Water Supply Allocation Plan was developed in consideration of the principles and guidelines described in the Water Supply and Drought Management (WSDM) Plan, with the objective of creating an equitable needs-based allocation. The plan's formula seeks to balance the impacts of a shortage at the retail level while maintaining equity on the wholesale level for shortages of Metropolitan supplies of up to 50 percent. The formula takes into account: impact on retail customers and the economy; growth and population; changes in supply conditions; investments in local resources; demand hardening aspects of non-potable recycled water use; implementation of conservation savings program; participation in Metropolitan's interruptible programs; and investments in facilities.

To prepare for the possibility of an allocation of imported water supplies from Metropolitan, MWDOC worked collaboratively with its 28 client agencies to develop its own Water Supply Allocation Plan, adopted January 2009, to allocate imported water supplies at the retail level. MWDOC's Water Supply Allocation Plan lays out the essential components of how MWDOC will determine and implement each client agency's allocation during a time of shortage.

MWDOC's Water Supply Allocation Plan uses a similar method and approach, when reasonable, as that of the Metropolitan Water Supply Allocation Plan. However, MWDOC's plan remains flexible to use an alternative approach when Metropolitan's method produces a significant unintended result for the client agencies. The MWDOC Water Supply Allocation Model follows five (5) basic steps to determine a retail agency's imported supply allocation.

Step 1: Determine Baseline Information

The first step in calculating a water supply allocation is to estimate water supply and demand using a historical based period with established water supply and delivery data. The base period for each of the different categories of demand and supply is calculated using data from the last three non-shortage years – calendar years, 2004, 2005, and 2006.

Step 2: Establish Allocation Year Information

In this step, the model adjusts for each member agency's water need in the allocation year. This is done by adjusting the base period estimates for increased retail water demand based on growth and changes in local supplies.

Step 3: Calculate Initial Minimum Allocation Based on Metropolitan's Declared Shortage Level

This step sets the initial water supply allocation for each client agency. After a regional shortage level is established, MWDOC will calculate the initial allocation as a percentage of adjusted Base Period Imported water needs within the model for each client agency.

Step 4: Apply Allocation Adjustments and Credits in the Areas of Retail Impacts, Conservation, and the Interim Agriculture Water Program

In this step, the model assigns additional water to address disparate impacts at the retail level caused by an across-the-board cut of imported supplies. It also applies a conservation credit given to those agencies that have achieved additional water savings at the retail level as a result of successful implementation of water conservation devices, programs and rate structures.

Step 5: Sum Total Allocations and Determine Retail Reliability

This is the final step in calculating a retail agency's total allocation for imported supplies. The model sums an agency's total imported allocation with all of the adjustments and credits and then calculates each agency's retail reliability compared to its Allocation Year Retail Demand.

5.2. Stages of Action

This section describes how the urban water supplier would respond to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

Stages of Drought Action

ETWD Board of Directors adopted Water Supply Shortage Ordinance No. 2010-1, rescinding Ordinance No. 2009-01. Ordinance No. 2010-01 establishes a comprehensive staged water conservation program that encouraged reduced water consumption within ETWD through conservation, enable effective water supply planning, assure reasonable and beneficial use of water, prevent waste of water, and maximize the efficient use of water within ETWD. Along with permanent water conservation requirements, ETWD's Comprehensive Water Conservation Program consists of the following three stages found in Table 5-1 to respond to a reduction in potable water available to ETWD for distribution to its customers with Stage 1 in effect at all times unless a mandatory conservation stage has been implemented by the Board of Directors.

Table 5-1: Water Supply Shortage Stages and Conditions – Rationing Stages

Stage No.	Water Supply Conditions	% Shortage
Level 1	Imported supplies may be reduced	Up to 20%
Level 2	Imported supplies likely to be reduced	Up to 40%
Level 3	ETWD will incur water shortages	40% or more

5.3. Three-Year Minimum Water Supply

As a matter of practice, Metropolitan does not provide annual estimates of the minimum supplies available to its member agencies. As such, Metropolitan member agencies must develop their own estimates for the purposes of meeting the requirements of the Act.

Section 135 of the Metropolitan Water District Act declares that a member agency has the right to invoke its “preferential right” to water, which grants each member agency a preferential right to purchase a percentage of Metropolitan’s available supplies based on specified, cumulative financial contributions to Metropolitan. Each year, Metropolitan calculates and distributes each member agency’s percentage of preferential rights. However, since Metropolitan’s creation in 1927, no member agency has ever invoked these rights as a means of acquiring limited supplies from Metropolitan.

As an alternative to preferential rights, Metropolitan adopted the Water Shortage Allocation Plan (WSAP) in February 2008. Under the WSAP, member agencies are

allowed to purchase a specified level of supplies without the imposition of penalty rates. The WSAP uses a combination of estimated total retail demands and historical local supply production within the member agency service area to estimate the firm demands on Metropolitan from each member agency in a given year. Based on a number of factors, including storage and supply conditions, Metropolitan then determines whether it has the ability to meet these firm demands or will need to allocate its limited supplies among its member agencies. Thus, implicit in Metropolitan's decision not to implement an allocation of its supplies is that at a minimum Metropolitan will be able to meet the firm demands identified for each of the member agencies.

In order to estimate the minimum available supplies from Metropolitan for the period 2011-2013, an analysis was performed to assess the likelihood that Metropolitan would re-implement mandatory water use restrictions in the event of a 1990-92 hydrologic conditions over this period. Specific water management actions during times of water shortage are governed by Metropolitan's Water Shortage and Drought Management Plan (WSDM Plan). Adopted by the Metropolitan Board in 1999, the WSDM Plan provides a general framework for potential storage actions during shortages, but recognizes that storage withdrawals are not isolated actions but part of a set of resource management actions along with water transfers and conservation. As such, there is no specific criterion for which water management actions are to be taken at specific levels of storage. The implementation of mandatory restrictions is solely at the discretion of the Metropolitan Board and there are no set criteria that require the Board to implement restrictions. Given these conditions, the analysis relies upon a review of recent water operations and transactions that Metropolitan has implemented during recent drought.

The first step in the analysis was a review of projected SWP allocations to Metropolitan, based on historical hydrologies. As with the recent drought, potential impacts to SWP supplies from further drought and the recently implemented biological opinions are anticipated to be the biggest challenges facing Metropolitan in the coming three years.

A review of projected SWP allocations from the DWR's State Water Project Delivery Reliability Report 2009 (2009 SWP Reliability Report) was made to estimate a range of conservative supply assumptions regarding the availability of SWP supplies. The 2009 SWP Reliability Report provides estimates of the current (2009) and future (2029) SWP delivery reliability and incorporates regulatory requirements for SWP and CVP operations in accordance with USFWS and NMFS biological opinions. Estimates of future reliability also reflect potential impacts of climate change and sea level rise.

The analysis assumes a maximum SWP allocation available to Metropolitan of 2,011,500 AF and a Metropolitan storage level of 1,700,000 AF at 2010 year-end. The analysis also assumes a stable water supply from the Colorado River in the amount of 1,150,000 AF through 2015. Although the Colorado River watershed has also experienced drought in

recent years, Metropolitan has implemented a number of supply programs that should ensure that supplies from this source are relatively steady for the next three years. Based on estimated “firm” demands on Metropolitan of 2.12 MAF, the annual surplus or deficit was calculated for each year of the three-year period.

A review of recent Metropolitan water management actions under shortage conditions was then undertaken to estimate the level of storage withdrawals and water transfers that Metropolitan may exercise under the 1990-92 hydrologic conditions were identified. For this analysis, it was assumed that, if Metropolitan storage levels were greater than 2 MAF at the beginning of any year, Metropolitan would be willing to take up to 600 TAF out of storage in that year. Where Metropolitan storage supplies were between 1.2 MAF and 2 MAF at the beginning of the year, it was assumed that Metropolitan would be willing to take up to 400 TAF in that year. At storage levels below 1.2 MAF, it was assumed that Metropolitan would take up to 200 TAF in a given year.

It was also assumed that Metropolitan would be willing to purchase up to 300 TAF of water transfer in any given year. For years where demands still exceeded supplies after accounting for storage withdrawals, transfer purchases were estimated and compared against the 300 TAF limit.

Table 5-2: Metropolitan Shortage Conditions

Study Year	Actual Year	SWP Allocation (%)	SWP (AF)	CRA (AF)	Total (AF)	Demand (AF)	Surplus/ Shortage (AF)	Storage at YE (AF)	Transfers (AF)
2011	1990	30%	603,450	1,108,000	1,711,450	2,124,000	(400,000)	1,300,000	(12,550)
2012	1991	27%	542,820	1,108,000	1,650,820	2,123,000	(200,000)	1,100,000	(272,180)
2013	1992	26%	522,990	1,108,000	1,630,990	2,123,000	(200,000)	900,000	(292,010)

Based on the analysis above, Metropolitan would be able to meet firm demands under the driest three-year hydrologic scenario using the recent water management actions described above without re-implementing mandatory water use restrictions on its member agencies. Given the assumed absence of mandatory restrictions, the estimated minimum imported water supplies available to MWDOC from Metropolitan is assumed to be equal to Metropolitan’s estimate of demand for firm supplies for MWDOC, which Metropolitan uses when considering whether to impose mandatory restrictions. Thus, the estimate of the minimum imported supplies available to MWDOC is 261,577 AF⁹.

MWDOC has also adopted a shortage allocation plan and accompanying allocation model that estimates firm demands on MWDOC. Assuming MWDOC would not be

⁹ Metropolitan 2010/11 Water Shortage Allocation Plan model (March 2011)

imposing mandatory restrictions if Metropolitan is not, the estimate of firms demands in MWDOC's latest allocation model has been used to estimate the minimum imported supplies available to each of MWDOC's customer agencies for 2011-13. Thus, the estimate of the minimum imported supplies available to ETWD is 10,871 AF¹⁰.

As captured in its 2010 RUWMP, Metropolitan believes that the water supply and demand management actions it is undertaking will increase its reliability throughout the 25-year period addressed in its plan. Thus for purposes of this estimate, it is assumed that Metropolitan and MWDOC will be able to maintain the identified supply amounts throughout the three-year period.

According to MWDOC, Metropolitan projects to be reliable for full service demands through the year 2035. Based on the MWDOC Water Supply Allocation Plan, ETWD is expected to fully meet demands for the next three years assuming Metropolitan and MWDOC are not in shortage and zero allocations are imposed for Imported Supplies. The Three Year Estimated Minimum Water Supply is listed in Table 5-3.

Table 5-3: Three-Year Estimated Minimum Water Supply (AFY)

Source	Year 1	Year 2	Year 3
	2010/2011	2011/2012	2012/2013
Local Supplies	450	450	450
Imported Supply	10,871	10,871	10,871
<i>Total Demand</i>	<i>11,321</i>	<i>11,321</i>	<i>11,321</i>

5.4. Catastrophic Supply Interruption

From a regional perspective, Orange County and all of Southern California is heavily dependent upon imported water supplies from Metropolitan. Imported water is conveyed through the SWP and CRA, which travel hundreds of miles to reach urban Southern California, and specifically to reach Orange County. Additionally, this water is distributed to customers through an intricate network of pipes and water mains that are susceptible to damage from earthquakes and other disasters. Regional storage for Southern California and Orange County is provided by Metropolitan to mitigate an outage of either the SWP or CRA. The recently completed Diamond Valley Lake is an 800,000 acre-foot reservoir, of which about 400,000 acre-feet of water is reserved for catastrophic emergencies. In fact, protection from catastrophic events such as earthquakes was a major reason for the construction of Diamond Valley Lake.

¹⁰ MWDOC Water Shortage Allocation model (August 2010)

Water Emergency Response Organization of Orange County

In 1983, the Orange County water community identified a need to develop a plan on how agencies would respond effectively to disasters impacting the regional water distribution system. The collective efforts of these agencies resulted in the formation of the Water Emergency Response Organization of Orange County (WEROC) to coordinate emergency response on behalf of all Orange County water and wastewater agencies, develop an emergency plan to respond to disasters, and conduct disaster training exercises for the Orange County water community. WEROC was established with the creation of an indemnification agreement between its member agencies to protect each other against civil liabilities and to facilitate the exchange of resources. WEROC is unique in its ability to provide a single point of contact for representation of all water and wastewater utilities in Orange County during a disaster. This representation is to the county, state, and federal disaster coordination agencies. Within the Orange County Operational Area, WEROC is the recognized contact for emergency response for the water community.

Actions Taken to Prepare for a Catastrophic Interruption in Supplies

ETWD relies on imported water for approximately 95% of its supply. In the event of a supply interruption in the importation facilities, ETWD's, as well as most of South Orange County's, customers would be greatly impacted. In December of 1999, the AMP unexpectedly ruptured, immediately eliminating a major source of supply to South Orange County. Metropolitan was able to repair the pipeline and restore regular operations within approximately seven days. It was fortunate that this pipeline failure occurred during the winter in a relatively accessible location. A more difficult pipeline repair or a major failure at the Diemer Treatment Plant could result in an interruption in import supply of greater than seven days. The Metropolitan Administrative Policy requires its member agencies be able to withstand planned supply shutdowns of at least seven days between the months of October and April. This policy is designed to facilitate Metropolitan's ability to conduct scheduled maintenance of the supply and treatment systems. The 1999 AMP failure made it quite apparent that the agencies in South Orange County that depend on the import supply must plan for unexpected supply interruptions during potential peak demand conditions.

The customers of ETWD are fortunate that its forefathers had the foresight to invest in a major potable water storage facility. ETWD's R-6 Reservoir was constructed in 1967 with a capacity of 223 million gallons. The facility was expanded in 2002 to 275 million gallons. After selling portion of its capacity to Santa Margarita Water District and Moulton Niguel Water District, ETWD retains 124.5 million gallons of storage capacity in the R-6 Reservoir. The storage capacity contained in the R-6 Reservoir represents the bulk of ETWD's emergency storage. ETWD operates 5 tank type reservoirs with a

combined 12 million gallons of storage capacity. These reservoirs, however, are operational reservoirs that are unlikely to be full in the event of an emergency. The means by which ETWD would extend the time that it can withstand a supply outage would include both passive and direct demand curtailment. Passive curtailment assumes that ETWD's customers will enact voluntary conservation measures based on their knowledge of an on-going incident or crisis. A major shutdown will undoubtedly be accompanied by MWDOC and/or Metropolitan press releases and extensive media coverage. During the 1999 AMP failure, word was spread quickly to the general population of the need for conservation until the pipeline could be repaired restoring normal service to the South Orange County region. Direct demand curtailment would entail the physical disconnection of irrigation service in an effort to preserve the supply for health and safety requirements. The District maintains an inventory of meter locks that would be used to facilitate the interruption of service to large irrigation users in the event of a longer duration emergency interruption in service.

ETWD has conducted extensive analyses to assess the ability to withstand unanticipated import supply interruptions. These analyses have considered scenarios ranging from a short term winter outage to a long term supply shutdown under max month summer conditions. The consumption data providing the basis for this analysis was drawn from the 2010 calendar year representing the most current consumption history. The analysis is also supplemented by the potential introduction of a 5 cfs supply from the Baker Water Treatment Plant that is scheduled to be operational in 2013. The results of this analysis are presented below:

7-Day Shutdown: ETWD can withstand a 7-day shutdown at any time with no curtailment.

10-Day Shutdown: ETWD can withstand a 10-day shutdown at any time with no curtailment.

14-Day Shutdown: The 14 day shutdown analysis indicates no conservation is required in either the winter or the annual average demand conditions. If the District is receiving 5 cfs from the Baker Water Treatment Plant no conservation will be required in the summer demand condition and only minor conservation will be required in the max month demand condition. In order to accommodate the 14-day shutdown under the summer demand condition, without the Baker Plant supply, demands must be reduced by 22%. The maximum month scenario, without the Baker Plant supply, will require a demand reduction of approximately 30%. These demand reductions are reasonable considering they would still provide supply greater than the normal annual average demand condition.

21-Day Shutdown: The 21-day shutdown shutdown analysis indicates no conservation is required in the winter demand condition. Without the proposed Baker Plant supply the

demand reductions necessary to accommodate the 21-day shutdown range from 27% under the annual average condition to as much as 55% in the max month condition. These demand reductions reduce demand to levels approximating the winter demand condition. With the proposed Baker Plant supply included the average demand condition can be accommodated with no conservation requirement while the summer and max month demand conditions will require reductions of 17% and 25% respectively. These reductions still provide supply exceeding the normal annual average demand condition.

30-Day Shutdown: The 30-day shutdown contemplates AMP failures in multiple locations or a failure of the Diemer Plant that requires an extended outage in order to facilitate a repair. The Baker Plant supply will play a critical role in managing a shutdown of this magnitude. With the Baker Plant supply the required consumption reductions range from zero in the winter to 43% in the max month condition. While this is a significant consumption reduction it still provides supply greater than the winter average and nearly 90% of the annual average demand. With steep cuts in irrigation, preserving the water for human needs, these reductions should be achievable. The consumption reduction requirements are significantly greater without the Baker Plant supply. The demand reductions to accommodate a 30-day shutdown in this case would range from 30% in the winter to nearly 80% in the max month demand condition. Achieving conservation approaching these extreme magnitudes will likely require ETWD physically discontinue service to dedicated irrigation meters and conduct extensive public outreach to encourage major conservation on the part of the residential and commercial community.

Table 5-4: Preparation Actions for Catastrophe

Possible Catastrophe	Preparation Actions
Regional Power Outage	Ownership of 124.5 million gallons in a 275 million gallon reservoir coupled with additional storage allows ETWD to withstand a supply interruption exceeding 14 days. Pump stations equipped with stationary generators, are propane fueled, or are located in a pressure zone that includes an interconnection to the Moulton Niguel District. ETWD also has adequate portable generators.
Earthquake	
Supply Contamination	
Terrorist Act which Interrupts Service	
Other(s)	

5.5. Prohibitions, Penalties and Consumption Reduction Methods

Prohibitions

The Water Conservation and Water Supply Shortage Ordinance No. 2010-01 lists water conservation requirements which shall take effect upon implementation by the Board of Directors. These prohibitions shall promote the efficient use of water, reduce or eliminate water waste, complement ETWD's Water Quality regulations and urban runoff reduction efforts, and enable implementation of ETWD's Water Shortage Contingency Measures. Prohibitions include, but are not limited to, restrictions on outdoor watering, washing of vehicles, food preparation establishments, repairing of leaks and other malfunctions, swimming pools, decorative water features, construction activities, and water service provisions which are listed in Table 5-5.

Table 5-5: Mandatory Prohibitions

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Watering prohibited any day of the week between 10 am and 5 pm (except using bucket or positive self closing shut-off hose nozzle or for quick system repairs)	Year Round
No more than 15 minutes of watering per day, per valve or unattended automatic irrigation systems. Some exemptions: <ul style="list-style-type: none"> a. Very low-flow drip-type systems where no emitter discharges more than 2 gallons of water per hour b. Systems equipped with sensor or weather-based controllers 	Year Round
No excessive water flow or runoff	Year Round
No outside watering when it is raining.	Year Round
Fix leaks/breaks within reasonable time or no more than 5 days of ETWD notice	Year Round
No hosing or washing down hard or paved surfaces (except by hand to eliminate safety or sanitary hazards)	Year Round
No hosing or washing down vehicles, except using a bucket or positive self closing shut-off hose nozzle or commercial car wash	Year Round
Decorative water fountains or features must re-circulate water	Year Round
Restaurants only serve water on request	Year Round
Hotels must provide guests option to not launder	Year Round

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
linens/towels	
Water-efficient pre-rinse kitchen sprayers required for new installations and retrofits	Year Round
No installation of non-recirculating car wash or laundry facilities or systems	Year Round
No single-pass cooling system for new or remodeled buildings	Year Round
Optional Program Levels require Commercial, Industrial and Institutional users in ETWD (10,000 billing units or more per year) to submit water conservation plan and reports to ETWD	Levels 1, 2, 3
Watering limited to 3 days a week from April to October, and 1 day a week from November to March	Level 1
Watering limited to 2 days a week from April to October, and remains 1 day a week from November to March	Level 2
Fix leaks/breaks within reasonable time or no more than 3 days of ETWD notice	Level 2
Filling or refilling ornamental lakes and ponds is prohibited. Ornamental lakes and ponds that sustain aquatic life of significant value and were actively managed prior to the shortage declaration are exempt.	Level 2
No filling or refilling ornamental lakes and ponds. Some exceptions: <ul style="list-style-type: none"> a. Ornamental lakes and ponds that sustain aquatic life and provided such life is of significant value and was actively managed in the water feature prior to declaring the shortage No filling residential swimming pools or outdoor spas or refilling more than 1 foot Some exceptions: <ul style="list-style-type: none"> a. Individuals who, due to health reasons or medical conditions, find it necessary to fill or refill their pools or spas 	Level 2
Wash cars only at commercial car wash with re-circulating system	Level 2
All outside watering prohibited. Some exceptions: <ul style="list-style-type: none"> a. Public works projects and actively-irrigated environmental mitigations projects b. Maintenance of vegetation, trees and shrubs using 	Level 3

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
c. Maintenance of existing landscaping necessary for fire protection and/or soil erosion control. Maintenance of plant materials identified as rare or essential to the well being of endangered/rare species	
Fix leaks/breaks within reasonable time or no more than 2 days of ETWD notice	Level 3
No new potable water, new water meters (temporary or permanent) or issuance of will-serve letters. Some exceptions for will-serve letters: <ul style="list-style-type: none"> a. Projects necessary to protect public health, safety and welfare b. Projects that have a valid, unexpired city building permit c. Projects in which applicants can provide substantial evidence of an enforceable commitment that water demands will be offset prior to the provision of a new water meter(s) 	Level 3
Option to discontinue service for customers who willfully violate provisions during water emergency	Level 3

Consumption Reduction Methods

Methods to reduce the use of potable water exist in all Water Shortage Levels which are expected to reduce consumption up to 40 percent or more in the most restrictive stages and are listed in Table 5-6.

Table 5-6: Consumption Reduction Methods

Consumption Reduction Methods	Stage When Method Takes Effect	Projected Reduction (%)
Level 1 Conservation Measures	1	Up to 20%
Level 2 Conservation Measures	2	Up to 40%
Level 3 Conservation Measures	3	40% or more

Penalties

Any customer who violates provisions of the Water Conservation and Water Supply Shortage Ordinance by either excess use of water or by specific violation of one or more

of the applicable water use restrictions for a particular mandatory conservation stage may be cited by ETWD and may be subject to written notices, surcharges, fines, flow restrictions, service disconnection, and/or service termination which are detailed in Table 5-7.

Table 5-7: Penalties and Charges

Penalties or Charges	Stage When Penalty Takes Effect
ETWD will issue a written warning	Permanent, Level 1 & 2
First Instance – ETWD will issue a written warning	Level 3
Second Instance – charge on water bill not to exceed two hundred and fifty dollars (\$250)	Level 3
Third Instance – charge on water bill not to exceed five hundred dollars (\$500).	Level 3
In addition to any non-compliance charges, ETWD may install a water flow restrictor device. If ETWD determines to install a water flow restrictor, installation of the flow restrictor would follow written notice of intent to the customer and would be in place for a minimum of 48 hours	Level 3
In addition to any non-compliance charges and the installation of a water flow restrictor, ETWD may disconnect and/or terminate a customer's water service	Level 3
A person or entity in non-compliance with this Ordinance is responsible for payment of ETWD's charges for installing and/or removing any flow restricting device and for disconnecting and/or reconnecting service per ETWD's schedule of charges then in effect	Level 3
Pursuant to Water Code Section 377, any instance of non-compliance with the Ordinance may be prosecuted as a misdemeanor punishable by imprisonment in the county jail for not more than 30 days or by a fine not exceeding \$1,000 or by both	Level 3

5.6. Impacts to Revenue

The actions described above to address a range of water shortage conditions have the potential to impact ETWD's revenues and expenditures. To assess these impacts, ETWD calculated the revenue impacts resulting from a 10%, 25% and 50% reduction in sales as compared to a base year that was based on an estimate of normal year baseline. Other factors incorporated into the analysis included water losses, pricing structure and avoided costs. The results of this analysis are shown below in Table 5-8.

Table 5-8: Revenue Impacts Analysis

Demand	Baseline (FY 08-09)	10%	25%	50%
SFR, MFR, IRR	4,182,631	3,764,368	3,136,973	2,091,316
Other Customer Classes	585,011	526,510	438,758	292,505
Total Water Sales (HCF)	4,767,642	4,290,878	3,575,732	2,383,821
Revenue				
SFR, MFR, IRR				
Tier 4 Revenue	\$0	\$0	\$0	\$0
Tier 3 Revenue	\$1,714,731	\$1,543,258	\$1,286,048	\$857,365
Tier 2 Revenue	\$3,342,614	\$3,008,352	\$2,506,960	\$1,671,307
Tier 1 Revenue	\$2,985,388	\$2,686,849	\$2,239,041	\$1,492,694
SFR, MFR, IRR Revenue	\$8,042,733	\$7,238,459	\$6,032,049	\$4,021,366
Other Customer Classes				
Other Revenue	\$1,187,572	\$1,068,815	\$890,679	\$593,786
Total Variable Rate Revenue	\$9,230,305	\$8,307,274	\$6,922,728	\$4,615,152
Fixed Monthly Revenue	\$2,753,919	\$2,753,919	\$2,753,919	\$2,753,919
Total Rate Revenue	\$11,984,224	\$11,061,193	\$9,676,648	\$7,369,072
Revenue Lost		(\$923,030)	(\$2,307,576)	(\$4,615,152)
Variable Costs				
Sources of Supply, Pumping, Treatment	\$6,689,366	\$6,020,429	\$5,017,025	\$3,344,683
Avoided Costs		\$668,937	\$1,672,342	\$3,344,683
Net Revenue Change		(\$254,094)	(\$635,235)	(\$1,270,469)

To mitigate against the loss of revenue, ETWD has implemented the following measures. ETWD has a designated Rate Stabilization Fund in the amount of \$2 million to prevent rate shock on its customers due to various factors. This fund is in addition to the Operational Reserve Fund and the Capital Reserve Fund. In case of severe water shortage, however remote the chances might be, ETWD will closely monitor its revenue requirements, with the potential for special charges or rate adjustments to insure that

revenue needs during the shortage period are met. ETWD will endeavor to affect a revenue neutral attitude during the shortage to keep impacts to residents and businesses to a minimum.

In addition, on July 1st, 2010, ETWD implemented a water budget tiered rate structure to promote efficiency and achieve conservation goals set by SB-7. The water budget tiered rate structure is designed to promote efficient water use and to assure financial sufficiency for ETWD's daily operations as well as fund capital improvements. The tiered rate structure is based on Water Budget Allocations and Customer Classes where any inefficient use of water is subject to higher charges to fund conservation programs and any supplemental water supply programs. ETWD would also impose rationing and surcharges for overuse. The surcharge was determined by establishing a base year and an allotment for each customer.

5.7. Reduction Measuring Mechanism

This section includes mechanisms for determining actual reductions in water use pursuant to the urban water shortage contingency analysis which are listed in Table 5-9.

- ETWD imports 100 percent of its water from the Metropolitan via the MWDOC. All of the water entering ETWD's system is metered. ETWD has the ability to monitor system wide consumption on a daily basis. ETWD will be in a position to conduct daily monitoring of compliance with consumption reduction objectives.
- ETWD reads its meters monthly. Each month ETWD will assess compliance the appropriate conservation objective based on the declared shortage phase on an account by account basis.
- MWDOC will provide each client agency with water use monthly reports that will compare each client agency's current cumulative retail usage to their allocation baseline. MWDOC will also provide quarterly reports on it cumulative retail usage versus its allocation baseline.

In addition to metering consumption ETWD will conduct periodic monitoring and inspection of the system to verify compliance with the usage prohibitions defined in Ordinance 2010-1.

Table 5-9: Water Use Monitoring Mechanisms

Mechanisms for Determining Actual Reductions	Type of Data Expected
Daily monitoring of system wide consumption.	Consumption reduction objectives compliance
Monthly billing meter monitoring.	Conservation objective based compliance.
MWDOC Water Use Monthly Reports	Comparison of cumulative retail usage to allocation baseline.

6. Recycled Water

6.1. Agency Coordination

There are a number of water agencies in South Orange County that provide potable water service as well as wastewater collection and treatment. These agencies depend on imported water supplies for the majority of their potable water supplies due to misfortune of geography in that very little groundwater supplies are available. These agencies have been in the forefront of recycled water development to diversify water supplies.

6.2. Wastewater Description and Disposal

Almost all of the wastewater generated within the ETWD service area is conveyed to their Water Recycling Plant (WRP) where it is treated and either used for irrigation or disposed of through the South Orange County Wastewater Authority (SOCWA) effluent transmission main and ocean outfall. The WRP is located in the western portion of ETWD adjacent to the Laguna Woods Village Golf Course. A small portion of flow in the southeast portion of ETWD is conveyed directly to the Moulton Niguel Water District collection system.

ETWD relies on a combination of gravity flow and pumping to convey wastewater generated to the WRP. Wastewater typically flows north to south and east to west. ETWD operates and maintains eleven lift stations which convey flow through force mains to the gravity collection system and on to the WRP.

The ETWD Water Recycling Plant (WRP) was originally constructed in 1963 to treat approximately 1.5 MGD. The plant has gone through several upgrades, and was completely reconstructed in 1998. The current capacity of the facility under an average flow condition is approximately 5.4MGD and has the ability to treat up to 6 MGD of wastewater to a secondary level.

Table 6-1 summarizes the past, current, and projected wastewater volumes collected and treated, and the quantity of wastewater treated to recycled water standards for treatment plants within ETWD's service area. Table 6-2 summarizes the disposal method, and treatment level of discharge volumes.

Table 6-1: Wastewater Collection and Treatment (AFY)

Type of Wastewater	Fiscal Year Ending						
	2005	2010	2015	2020	2025	2030	2035-opt
Wastewater Collected & Treated in Service Area	5,500	4,650	4,650	4,750	4,850	4,950	4,950
Volume that Meets Recycled Water Standards	430	450	450	450	450	450	450

Table 6-2: Disposal of Wastewater (Non-Recycled) (AFY)

Method of Disposal	Treatment Level	Fiscal Year Ending					
		2010	2015	2020	2025	2030	2035-opt
Ocean Discharge	Secondary	4,220	4,200	4,300	4,400	4,500	4,500

6.3. Current Recycled Water Uses

ETWD puts to beneficial use approximately 7% of the wastewater that it treats at the ETWD Water Recycling Plant (WRP). The recycled water is primarily used for irrigation of the Laguna Woods Village Golf Course, irrigation on the WRP grounds, and as process water at the WRP. ETWD continues to investigate options for expanding the distribution of recycled water to its customers as well as other agencies in the region. The wastewater is mostly residential in nature and while it is currently treated to a secondary standard the wastewater is of sufficient quality.

On average, 3.8 MGD (4,260 AFY) of secondary treated effluent is disposed via the SOCWA Effluent Transmission Main to the Aliso Creek Ocean Outfall and 0.4 MGD or 430 acre-feet per year of effluent is treated to a secondary level followed by screening and disinfection and is sent to the recycled water distribution system.

Table 6-3 below illustrates the uses for recycled water in ETWD. The usage is limited to landscape irrigation and in-plant uses at WRP, designated in the Table as industrial. The treatment level is secondary treatment followed by further screening and disinfection.

Table 6-3: Current Recycled Water Uses (AFY)

User Type	Treatment Level	Fiscal Year Ending
		2010
Agriculture		
Landscape	Secondary, Disinfected and Screened	450
Wildlife Habitat		
Wetlands		
Industrial		
Groundwater Recharge		
Total		450

6.4. Potential Recycled Water Uses

Table 6-4 and Table 6-5 present projected recycled water use within ETWD's service area through 2035. ETWD is currently in the planning stage of a significant expansion of its recycled water distribution capacity. The proposed project would construct new recycled water distribution piping supplied by imported tertiary treated recycled water from MNWD and IRWD. The proposed project, expected to be in service by 2015, would increase ETWD's recycled water supply by as much as 750 AFY.

Table 6-4: Projected Future Use of Recycled Water in Service Area (AFY)

User Type	Fiscal Year Ending					
	2010	2015	2020	2025	2030	2035-opt
Projected Use of Recycled Water	450	1,200	1,200	1,200	1,200	1,200

Table 6-5: Projected Recycled Water Uses (AFY)

User Type	Treatment Level	Fiscal Year Ending				
		2015	2020	2025	2030	2035-opt
Agriculture						
Landscape	Secondary, Disinfected and Screened	1,200	1,200	1,200	1,200	1,200
Wildlife Habitat						
Wetlands						
Industrial						
Groundwater Recharge						
Total		1,200	1,200	1,200	1,200	1,200

Table 6-6 compares the recycled water use projections from ETWD's 2005 UWMP with actual 2010 recycled water use.

Table 6-6: Recycled Water Uses – 2005 Projections compared with 2010 Actual (AFY)

User Type	2005 Projection for 2010	2010 Actual Use
Agriculture		
Landscape	575	450
Wildlife Habitat		
Wetlands		
Industrial		
Groundwater Recharge		
Total	575	450

6.4.1. Direct Non-Potable Reuse

ETWD currently uses recycled water from their WRP for direct non-potable reuse such as landscape irrigation.

6.4.2. Indirect Potable Reuse

ETWD does not have the potential for indirect potable reuse within their service area.

6.5. Optimization Plan

In Orange County, the majority of recycled water is used for irrigating golf courses, parks, schools, business and communal landscaping. However, future recycled water use can increase by requiring dual piping in new developments, retrofitting existing landscaped areas and constructing recycled water pumping stations and transmission mains to reach areas far from the treatment plants. Gains in implementing some of these projects have been made throughout the county; however, the additional costs, large energy requirements, and facilities make such projects very expensive to pursue.

To optimize the use of recycled water, cost/benefit analyses must be conducted for each potential project. Once again, this brings about the discussion on technical and economic feasibility of a recycled water project requiring a relative comparison to alternative water supply options.

ETWD will conduct future cost/benefit analyses for recycled water projects, and seek creative solutions and a balance to recycled water use, in coordination with MWDOC, Metropolitan and other cooperative agencies. These include solutions for funding, regulatory requirements, institutional arrangements and public acceptance.

7. Future Water Supply Projects and Programs

7.1. Water Management Tools

Resource optimization such as desalination to minimize the needs for imported water is led by the regional agencies in collaboration with local agencies. With the advancement and improvements of the water recycling plant process, along with efforts in reducing water waste, ETWD can meet projected demands with existing facilities and distribution system.

7.2. Transfer or Exchange Opportunities

Metropolitan currently has a tiered unbundled rate structure. Tier 2 of this rate structure increases the cost of supply to a member agency in order to provide a price signal that encourages development of alternative supply sources. One alternative source of supply may be a transfer or exchange of water with a different agency.

The CALFED Bay-Delta Program (CALFED) has helped to develop an effective market for water transactions in the Bay-Delta region. This market is demonstrated by the water purchases made by the Environmental Water Account (EWA) and Metropolitan in recent years. MWDOC and its member agencies plan to take advantage of selected transfer or exchange opportunities in the future. These opportunities can help ensure supply reliability in dry years and avoid the higher Tier 2 cost of supply from Metropolitan. The continued development of a market for water transactions under CALFED will only increase the likelihood of MWDOC participation in this market when appropriate opportunities arise.

MWDOC will continue to help its member agencies in developing these opportunities and ensure their successes. In fulfilling this role, MWDOC will look to help its member agencies navigate the operational and administrative issues of wheeling water through Metropolitan water distribution system.

ETWD relies on the efforts of Metropolitan as well as MWDOC to pursue transfer or exchange opportunities. At this time, ETWD is not currently involved in any transfer or exchange opportunities.

7.3. Planned Water Supply Projects and Programs

Baker Water Treatment Plant

The Baker Water Treatment Plant is planned to be a new 28 MGD plant at the existing Irvine Ranch Water District's (IRWD) Baker Filtration Plant site in Lake Forest. The Baker Water Treatment Plant will treat imported untreated water from the Santiago Lateral and Irvine Lake through the Baker Pipeline. The Baker Water Treatment Plant is currently in design and is scheduled to begin construction in 2011 and expected to come online in FY 2012-13. ETWD has a capacity right of 3,600 AFY.

Recycled Water Expansion

ETWD is currently in the planning stage of a significant expansion of its recycled water distribution capacity. The proposed project would construct new recycled water distribution piping supplied by imported tertiary treated recycled water from MNWD and IRWD. The proposed project, expected to be in service by 2015, would increase ETWD's recycled water supply by as much as 750 AFY.

Table 7-1: Specific Planned Water Supply Projects and Programs

Project Name	Projected Start Date	Projected Completion Date	Normal-Year Supply to Agency (AF)	Single-Dry Year Yield (AF)	Multiple-Dry-Year 1 Yield (AF)	Multiple-Dry-Year 2 Yield (AF)	Multiple-Dry-Year 3 Yield (AF)
Baker Water Treatment Plant	2011	2013	3,600	3,600	3,600	3,600	3,600
Recycled Water Expansion		2015	750	750	750	750	750

7.4. Desalination Opportunities

Until recently, seawater desalination has been considered uneconomical to be included in the water supply mix. However, recent breakthroughs in membrane technology and plant siting strategies have helped reduce desalination costs, warranting consideration among alternative resource options. However, the implementation of large-scale seawater desalination plants faces considerable challenges. These challenges include high capital and operation costs for power and membrane replacement, availability of funding measures and grants, addressing environmental issues and addressing the requirements of permitting organizations, such as the Coastal Commission. These issues require additional research and investigation.

MWDOC has been in the process of studying the feasibility of ocean desalination on behalf of its member agencies. MWDOC is reviewing and assessing treatment technologies, pretreatment alternatives, and brine disposal issues, and identifying and evaluating resource issues such as permitting, and the regulatory approvals (including CEQA) associated with the delivery of desalinated seawater to regional and local distribution system.

MWDOC is also assisting its member agencies in joint development of legislative strategies to seek funding in the form of grant and/or loans, and to inform decision-makers of the role of seawater desalination in the region's future water supplies. Observing the strategies and outcomes of other agency programs (such as that in Tampa Bay, Florida) to gain insights into seawater desalination implementation and cost issues is also being undertaken.

In Orange County, there are three proposed ocean desalination projects that could serve MWDOC, including one specifically that may benefit ETWD. These are the Huntington Beach Seawater Desalination Project, the South Orange Coastal Desalination Project, and the Camp Pendleton Seawater Desalination Project.

Table 7-2: Opportunities for Desalinated Water

Sources of Water	Check if Yes
Ocean Water	X
Brackish Ocean Water	X
Brackish Groundwater	

7.4.1. Groundwater

There are currently no brackish groundwater opportunities within ETWD's service area.

7.4.2. Ocean Water

Huntington Beach Seawater Desalination Project – Poseidon Resources LLC (Poseidon), a private company, has proposed development of the Huntington Beach Seawater Desalination Project to be located adjacent to the AES Generation Power Plant in the City of Huntington Beach along Pacific Coast Highway and Newland Street. The proposed project would produce up to 50 MGD (56,000 AFY) of drinking water and will distribute water to coastal and south Orange County to provide approximately 8% of Orange County's water supply needs. The project supplies would be distributed to participating agencies through a combination of (1) direct deliveries through facilities including the East Orange County Feeder #2 (EOCF #2), the City of Huntington Beach's

distribution system, and the West Orange County Water Board Feeder #2 (WOCWBF #2), and (2) water supply exchanges with agencies with no direct connection to facilities associated with the Project.

Poseidon had received non-binding Letters of Intent (LOI) from MWDOC and 17 retail water agencies to purchase a total of approximately 72 MGD (88,000 AFY) of Project supplies. On July 23, 2009, ETWD signed a non-binding LOI for 2.7 MGD (3,000 AFY) of Project supplies.

The Project has received specific approvals from the Huntington Beach City Council, including the Coastal Development Permit, Tentative Parcel Map, Subsequent Environmental Impact Report and Conditional Use Permit, which collectively provided for the long-term operation of the desalination facility.

In addition to final agreements with the participating agencies, the Project still needs approvals from the State Lands Commission and the California Coastal Commission before Poseidon can commence construction of the desalination facility in Huntington Beach. A public hearing on the Project before the State Lands Commission is expected as early as this October. If project receives all required permits by 2011, it could be producing drinking water for Orange County by as soon as 2013.

South Orange Coastal Desalination Project – MWDOC is proposing a desalination project in joint with Laguna Beach County Water District, Moulton Niguel Water District, City of San Clemente, City of San Juan Capistrano, South Coast Water District, and Metropolitan. The project is to be located adjacent to the San Juan Creek in Dana Point just east of the transition road from PCH to the I-5. The project will provide 15 MGD (16,000 AFY) of drinking water and will provide up to 30% of its potable water supply to the participating agencies.

Phase 1 consists of drilling 4 test borings and installing monitoring wells. Phase 2 consists of drilling, constructing and pumping a test slant well. Phase 3 consists of constructing a Pilot Test Facility to collect and assess water quality. Phases 1 and 2 have been completed and Phase 3 commenced in June 2010 and will last 18 months.

If pumping results are favorable after testing, a full-scale project description and EIR will be developed. If EIR is adopted and necessary permits are approved, project could be operational by 2016.

Camp Pendleton Seawater Desalination Project – San Diego County Water Authority (SDCWA) is proposing a desalination project in joint with Metropolitan to be located at Camp Pendleton Marine Corps Base adjacent to the Santa Margarita River. The initial project would be a 50 or 100 MGD plant with expansions in 50 MGD increments up to a max of 150 MGD making this the largest proposed desalination plant in the US.

The project is currently in the study feasibility stage and is conducting geological surveys to study the effect on ocean life and examining routes to bring desalination to SDCWA's delivery system. MWDOC and south Orange County agencies are maintaining a potential interest in the project, but at this time is only doing some limited fact finding and monitoring of the project.

8. UWMP Adoption Process

8.1. Overview

Recognizing that close coordination among other relevant public agencies is the key to the success of its UWMP, ETWD worked closely with other entities such as MWDOC to develop and update this planning document. ETWD also encouraged public involvement through a holding of a public hearing to learn and ask questions about their water supply.

This section provides the information required in Article 3 of the Water Code related to adoption and implementation of the UWMP. Table 8-1 summarizes external coordination carried out by ETWD and their corresponding dates. The UWMP checklist to confirm compliance with the Water Code is provided in Appendix A.

Table 8-1: External Coordination and Outreach

External Coordination and Outreach	Date	Reference
Encouraged public involvement (Public Hearing)	May 12, 2011 & May 19, 2011	Appendix F
Notified city or county within supplier's service area that water supplier is preparing an updated UWMP (at least 60 days prior to public hearing)	March 16, 2011	Appendix E
Held public hearing	May 26, 2011	Appendix F
Adopted UWMP	May 26, 2011	Appendix G
Submitted UWMP to DWR (no later than 30 days after adoption)	June 26, 2011	
Submitted UWMP to the California State Library and city or county within the supplier's service area (no later than 30 days after adoption)	June 26, 2011	
Made UWMP available for public review (no later than 30 days after filing with DWR)	July 26, 2011	

This UWMP was adopted by ETWD's Board of Directors on May 26, 2011. A copy of the adopted resolution is provided in Appendix G.

A change from the 2004 legislative session to the 2009 legislative session required ETWD to notify any city or county within its service area at least 60 days prior to the public hearing. ETWD sent a Letter of Notification to the Cities of Aliso Viejo, Laguna

Hills, Laguna Woods, Lake Forest, and Mission Viejo as well as the County of Orange on March 16, 2011 that it is in the process of preparing an updated UWMP (Appendix E).

8.2. Public Participation

According to California Water Code Section 10642, “each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.”

To generate interest and encourage the public’s participation in the planning process and to actively seek input ETWD discussed the 2010 UWMP at the Public Hearing scheduled on May 26, 2011. Finally, the draft UWMP was also made available for public review on the ETWD website at www.etwd.com.

8.3. Agency Coordination

All of ETWD’s water supply planning relates to the policies, rules, and regulations of its regional and local water providers. ETWD is dependent on imported water from Metropolitan through MWDOC, its regional wholesaler. ETWD is also a member of SOCWA and supplies recycled water to its customers. ETWD provides water to five cities within Orange County. As such, these entities were involved in the development of its 2010 UWMP at various levels of contribution as summarized in Table 8-2.

Table 8-2: Coordination with Appropriate Agencies

	Participated in Plan Development	Commented on Draft	Attended Public Meetings	Contacted for Assistance	Sent Copy of Draft Plan	Sent Notice of Intention to Adopt	Not Involved/No Information
MWDOC	X	X		X	X	X	
SOCWA	X			X	X	X	
City of Aliso Viejo	X			X	X	X	
City of Mission Viejo	X			X	X	X	
City of Laguna Hills	X			X	X	X	
City of Laguna Woods	X			X	X	X	
City of Lake Forest	X			X	X	X	

As a member agency of MWDOC, MWDOC provided assistance to ETWD's 2010 UWMP development by providing much of the data and analysis such as, population projections from the California State University at Fullerton, Center of Demographic Research (CDR) and SBx7-7 modeling. MWDOC provided information that quantifies water availability to meet their projected demands for the next 25 years, in five-year increments. Based on the projections of retail demand and local supplies completed by ETWD, and the imported supply availability described in Metropolitan's 2010 RUWMP, MWDOC prepared an informational package with data specific to ETWD, that incorporated additional calculations for the required planning efforts. ETWD's UWMP was developed in collaboration with MWDOC's 2010 RUWMP to ensure consistency between the two documents as well as Metropolitan's 2010 RUWMP and 2010 Integrated Water Resources Plan.

8.4. UWMP Submittal

ETWD consulted with and obtained comments from the five cities to which it provides water service as well the County Planning Department prior to and after the release of the Draft UWMP Update. The Draft plan was made available for public review and

inspection at the offices of ETWD as well as the local Public Libraries. The draft UWMP was also made available on the ETWD website at www.etwd.com.

A Public hearing was held at ETWD Offices by the Board of Directors of ETWD on May 26, 2011. Prior to the hearing, notice of the time and place was published pursuant to Section 6066 of the Government Code. The comments received from the Public Hearing were addressed as appropriate in the Plan.

The Board of Directors adopted the 2010 UWMP during a regularly scheduled meeting on May 26, 2011. The Plan is available for public review at ETWD Offices.

Appendices

- A. Urban Water Management Plan Checklist
- B. Calculation of Dry Year Demands
- C. Water Budget Tiered Rate Study
- D. Ordinance No. 2010-1
- E. 60 Day Notification Letters
- F. Public Hearing Notice
- G. Copy of Plan Adoption

Appendix A

Urban Water Management Plan Checklist

Urban Water Management Plan checklist, organized by subject

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
PLAN PREPARATION				
4	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	10620(d)(2)		Section 8.3
6	Notify, at least 60 days prior to the public hearing on the plan required by Section 10642, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Any city or county receiving the notice may be consulted and provide comments.	10621(b)		Appendix E
7	Provide supporting documentation that the UWMP or any amendments to, or changes in, have been adopted as described in Section 10640 et seq.	10621(c)		Section 8.4
54	Provide supporting documentation that the urban water management plan has been or will be provided to any city or county within which it provides water, no later than 60 days after the submission of this urban water management plan.	10635(b)		Section 8.4
55	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	10642		Section 8.2
56	Provide supporting documentation that the urban water supplier made the plan available for public inspection and held a public hearing about the plan. For public agencies, the hearing notice is to be provided pursuant to Section 6066 of the Government Code. The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water. Privately-owned water suppliers shall provide an equivalent notice within its service area.	10642		Appendix F
57	Provide supporting documentation that the plan has been adopted as prepared or modified.	10642		Appendix G
58	Provide supporting documentation as to how the water supplier plans to implement its plan.	10643		Section 8.4

No.	UWMP requirement a	Calif. Water Code reference	Additional clarification	UWMP location
59	Provide supporting documentation that, in addition to submittal to DWR, the urban water supplier has submitted this UWMP to the California State Library and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. This also includes amendments or changes.	10644(a)		Section 8.4
60	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the urban water supplier has or will make the plan available for public review during normal business hours	10645		Section 8.4
SYSTEM DESCRIPTION				
8	Describe the water supplier service area.	10631(a)		Section 1.3.1
9	Describe the climate and other demographic factors of the service area of the supplier	10631(a)		Section 2.2.1
10	Indicate the current population of the service area	10631(a)	Provide the most recent population data possible. Use the method described in "Baseline Daily Per Capita Water Use." See Section M	Section 2.2.2
11	Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional, or local service area population projections.	10631(a)	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	Section 2.2.2
12	Describe other demographic factors affecting the supplier's water management planning.	10631(a)		Section 2.2.3
SYSTEM DEMANDS				
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)		Section 2.4.4 Section 2.4.5
2	Wholesalers: Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. Retailers: Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	Retailers and wholesalers have slightly different requirements	Appendix F Section 2.4.6

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
3	Report progress in meeting urban water use targets using the standardized form.	10608.40		Not applicable
25	Quantify past, current, and projected water use, identifying the uses among water use sectors, for the following: (A) single-family residential, (B) multifamily, (C) commercial, (D) industrial, (E) institutional and governmental, (F) landscape, (G) sales to other agencies, (H) saline water intrusion barriers, groundwater recharge, conjunctive use, and (I) agriculture.	10631(e)(1)	Consider 'past' to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years.	Section 2.3
33	Provide documentation that either the retail agency provided the wholesale agency with water use projections for at least 20 years, if the UWMP agency is a retail agency, OR, if a wholesale agency, it provided its urban retail customers with future planned and existing water source available to it from the wholesale agency during the required water-year types	10631(k)	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	Section 2.5
34	Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)		Section 2.5.2
SYSTEM SUPPLIES				
13	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, and 2030.	10631(b)	The 'existing' water sources should be for the same year as the "current population" in line 10. 2035 and 2040 can also be provided.	Section 3.1
14	Indicate whether groundwater is an existing or planned source of water available to the supplier. If yes, then complete 15 through 21 of the UWMP Checklist. If no, then indicate "not applicable" in lines 15 through 21 under the UWMP location column.	10631(b)	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	Not applicable
15	Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)		Not applicable
16	Describe the groundwater basin.	10631(b)(2)		Not applicable
17	Indicate whether the groundwater basin is adjudicated? Include a copy of the court order or decree.	10631(b)(2)		Not applicable

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
18	Describe the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. If the basin is not adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)		Not applicable
19	For groundwater basins that are not adjudicated, provide information as to whether DWR has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition. If the basin is adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)		Not applicable
20	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	10631(b)(3)		Not applicable
21	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	10631(b)(4)	Provide projections for 2015, 2020, 2025, and 2030.	Not applicable
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)		Section 7.2
30	Include a detailed description of all water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years, excluding demand management programs addressed in (f)(1). Include specific projects, describe water supply impacts, and provide a timeline for each project.	10631(h)		Section 7.3
31	Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater.	10631(i)		Section 7.4
44	Provide information on recycled water and its potential for use as a water source in the service area of the urban water supplier. Coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	10633		Section 6.1
45	Describe the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	10633(a)		Section 6.2

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
46	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	10633(b)		Section 6.2
47	Describe the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	10633(c)		Section 6.3
48	Describe and quantify the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	10633(d)		Section 6.4
49	The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	10633(e)		Section 6.4
50	Describe the actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.	10633(f)		Section 6.5
51	Provide a plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.	10633(g)		Section 6.5
WATER SHORTAGE RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING ^b				
5	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	10620(f)		Section 3
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage and provide data for (A) an average water year, (B) a single dry water year, and (C) multiple dry water years.	10631(c)(1)		Section 3.4.1
23	For any water source that may not be available at a consistent level of use - given specific legal, environmental, water quality, or climatic factors - describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.	10631(c)(2)		Section 3.4.2
35	Provide an urban water shortage contingency analysis that specifies stages of action, including up to a 50-percent water supply reduction, and an outline of specific water supply conditions at each stage	10632(a)		Section 5.2

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
36	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.	10632(b)		Section 5.3
37	Identify actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.	10632(c)		Section 5.4
38	Identify additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.	10632(d)		Section 5.5
39	Specify consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.	10632(e)		Section 5.5
40	Indicated penalties or charges for excessive use, where applicable.	10632(f)		Section 5.5
41	Provide an analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.	10632(g)		Section 5.6
42	Provide a draft water shortage contingency resolution or ordinance.	10632(h)		Appendix D
43	Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)		Section 5.7
52	Provide information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments, and the manner in which water quality affects water management strategies and supply reliability	10634	Four years 2010, 2015, 2020, 2025, and 2030	Section 3.4.2.1

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
53	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. Base the assessment on the information compiled under Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)		Section 3.4.3 Section 3.4.4 Section 3.4.5
DEMAND MANAGEMENT MEASURES				
26	Describe how each water demand management measures is being implemented or scheduled for implementation. Use the list provided.	10631(f)(1)	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules.	Section 4
27	Describe the methods the supplier uses to evaluate the effectiveness of DMMs implemented or described in the UWMP.	10631(f)(3)		Section 4
28	Provide an estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the ability to further reduce demand.	10631(f)(4)		Section 4
29	Evaluate each water demand management measure that is not currently being implemented or scheduled for implementation. The evaluation should include economic and non-economic factors, cost-benefit analysis, available funding, and the water suppliers' legal authority to implement the work.	10631(g)	See 10631(g) for additional wording.	Not applicable
32	Include the annual reports submitted to meet the Section 6.2 requirements, if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29.	Not applicable

a The UWMP Requirement descriptions are general summaries of what is provided in the legislation. Urban water suppliers should review the exact legislative wording prior to submitting its UWMP.

b The Subject classification is provided for clarification only. It is aligned with the organization presented in Part I of this guidebook. A water supplier is free to address the UWMP Requirement anywhere with its UWMP, but is urged to provide clarification to DWR to facilitate review

Appendix Ó

Calculation of Dry Year Demands

Demand “Bump” Factors for 2010 UWMP

Description of Methodology

Water agencies must develop estimates of the impacts of single dry years (Single-Dry) and multiple consecutive dry years (Multiple-Dry) on both supplies and demands in future years. In these cases, demands increase somewhat above the normal or average level. The increase can be expressed as a percent “bump” up from the normal level. For example, if dry year demand was 105 percent of normal, this would be a 5% “bump”. As the methodology to estimate the Single-Dry and Multiple-Dry “bumps” was developed, several issues needed to be decided, as follows:

1. The methodology used existing data from MWDOC records for each agency, to allow the estimates to reflect the characteristics and differences of demands relative to the makeup of each retail entity. The overall MWDOC estimate was developed from a weighted sum of all of OC’s agencies.
2. Total potable demands, including agricultural demands, were used to derive the “bumps” because Orange County agencies have opted to have water that is used for agricultural uses be considered as full service demands. Non-potable demands are included; these demands will be met with non-potable supplies.
3. The methodology focused on per-capita usage (in units of AF/capita) because this removes the influence of growth from the analysis. Overall population growth in Orange County has been about 1% per year over the past two decades, creating about a 20% increase in demand over two decades. Some of the agencies have had even higher growth.
4. The period that was used for the analysis was limited to FY 1992-93 thru FY 2008-09 because fiscal years 1991-92 and 2009-10 were years of extraordinary conservation-- pricing disincentives for using over the allocated amounts were implemented in order to curtail demands-- and so these years were not considered. The Orange County total per-capita water usage in the period FY 1992-93 thru FY 2008-09 is plotted in Figure 1. Per-capita water use in Orange County has been on a decreasing trend in recent years as shown by the trend line in Figure 1. The downward trend is likely due to water use efficiency efforts, principally the plumbing codes since 1992 that have required low-flush toilets in all new construction and prohibited the sale of high-flush toilets for replacement purposes. Because of this drop in per-capita usage over time, the more recent data is a better predictor of future usage than the earlier data. Therefore, we narrowed the focus to the period FY 2001-02 thru FY 2008-09.
5. **Single-Dry “Bump” Methodology:** Per-capita usage for each participant agency from FY 2001-02 thru FY 2008-09 is shown in Table 1. The Single-Dry Bump for each agency was derived using the highest per-capita usage in the period, divided by average per-capita usage for that period. Because of suspect data for Fountain Valley and Santa Ana, the highest year data was eliminated and the second-highest usage in the period was used (when data was suspect, it was also removed from the average for the agency). The resulting Single-Dry “bumps” are shown in Table 2. The OC-average Single-Dry “bump” came to 6.6%
6. **Multiple-Dry “Bump” Methodology:** DWR guidelines recommend that “multiple” years is three years. There are various methods that can be used to derive demand “bumps” for those three years. The same “bump” can be used for all three years, or different “bumps” can be assumed for each of the three years. A pattern can be selected based on historical demand data or on historical water supply data or on another basis. MWDOC selected a Multiple-Dry Bump as the same as the Single-Dry Bump for each agency. This means having three highest-demand years in a row. This is conservative because it would be extremely unlikely for three driest years to occur in a row. However, it should be noted that future demand in any particular year depends on other factors in addition to rainfall, such as the economic situation, and cloudiness, windiness, etc. The OC-average Multiple-Dry “bump” came to 6.6%.

Figure 1
Per-Capita Water Use in Orange County (AF/person)

FY Ending	OC Actual AF/person	Least Sq AF/person	approx high	approx "bump"
1993	0.223327	0.233	0.250	7%
1994	0.223528	0.232		
1995	0.221986	0.230		
1996	0.235919	0.229		
1997	0.244071	0.228		
1998	0.217014	0.226		
1999	0.228797	0.225		
2000	0.242408	0.224		
2001	0.223537	0.222		
2002	0.228534	0.221		
2003	0.214602	0.219		
2004	0.222155	0.218		
2005	0.204941	0.217		
2006	0.207720	0.215		
2007	0.223599	0.214		
2008	0.211873	0.212		
2009	0.202396	0.211	0.225	7%

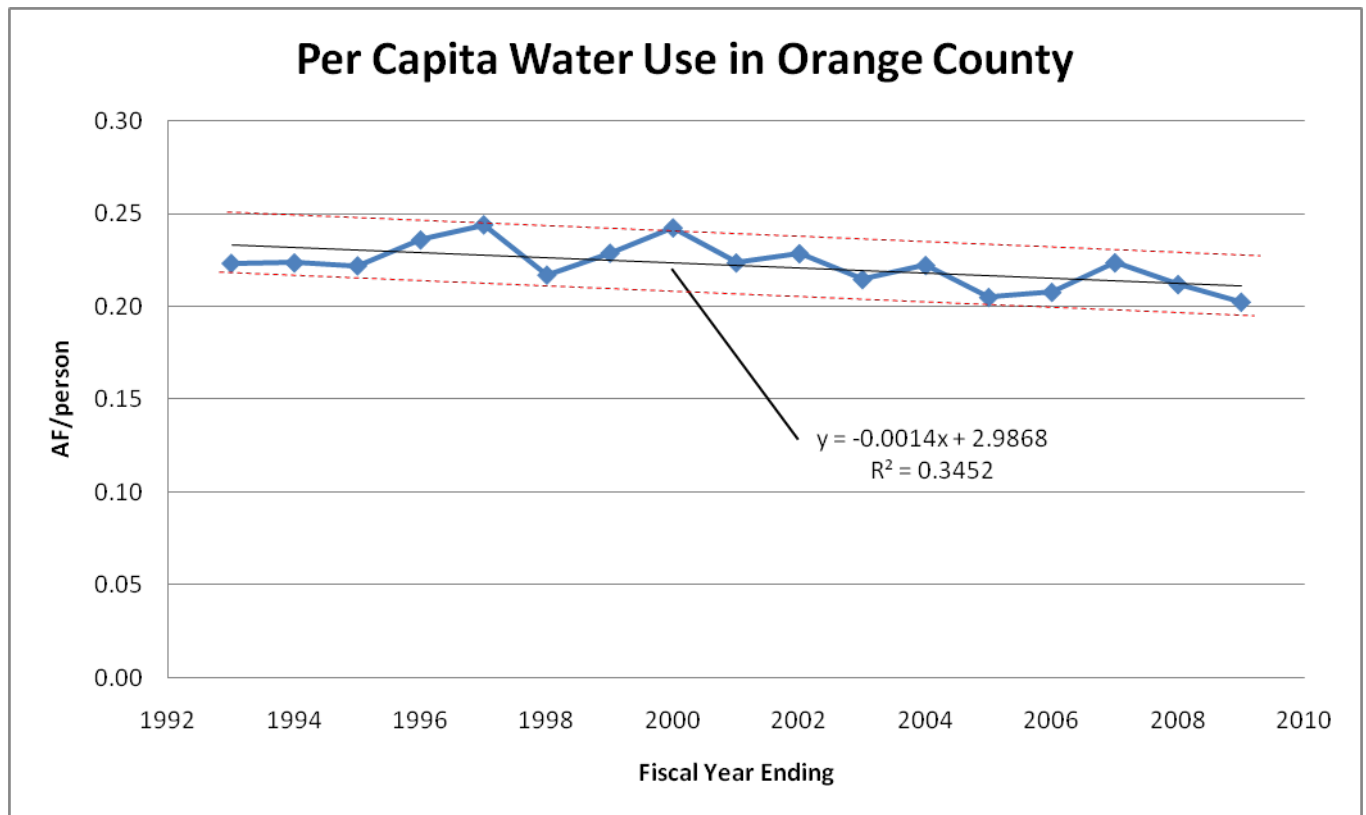


Table 1. Per-Capita Retail Water Usage by Retail Water Agency [1] [2]

Fiscal Year ->	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
	Per Capita Retail Water Usage (AF/person)							
El Toro WD	0.23504	0.24329	0.23768	0.21380	0.21395	0.23502	0.22276	0.20742

[1] Retail water usage (includes recycled water and Agricultural usage) divided by population.

[2] Population is for Jan. 1 of each fiscal year ending. Source: Center for Demographic Research, CSU Fullerton.

Table 2

Demand Increase "Bump" Factors for Single Dry Years and Multiple Dry Years
for OC Water Agencies participating in MWDOC's 2010 UWMP group effort

	Single	Multiple	
El Toro WD	7.6%	7.6%	
OC Average	6.6%	6.6%	weighted average of all OC water agencies

Appendix C

Water Budget Tiered Rate Study



EL TORO WATER DISTRICT

Water Budget Tiered Rate Study

April 2010 /// Final Report



RFC

RAFTELIS FINANCIAL
CONSULTANTS, INC.

201 S. Lake Avenue, Suite 301
Pasadena, CA 91101



April 30, 2010

Mr. Mike Grandy, CFO
Assistant General Manager / CFO
El Toro Water District
24251 Los Alisos Blvd.
Lake Forest, CA 92630

Dear Mr. Grandy:

Raftelis Financial Consultants (RFC), Inc. is pleased to provide this Water Budget Tiered Rate Study Report (Report) summarizing our analysis to design the water budget allocations for residential and irrigation customers and to determine tiered water rates designed to recover the cost of providing water services to customers in the El Toro Water District (District). RFC reviewed the current water rate structure, conducted a cost of service analysis, and developed a water rate structure and rates that address the water resource management issues that the District is facing.

This Report summarizes the key findings and recommendations related to the water budget allocation and tiered water rates for residential and irrigation customers.

It has been a pleasure working with you and we thank you and District staff for the support provided during the course of this study.

Sincerely,

Raftelis Financial Consultants, Inc.

A handwritten signature in blue ink, appearing to read "Sanjay Gaur".

Sanjay Gaur
Manager

A handwritten signature in blue ink, appearing to read "Khanh Phan".

Khanh Phan
Senior Consultant



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1. EXECUTIVE SUMMARY

1.1 Introduction

Southern California water agencies are facing water resource challenges including statewide drought, the Delta regulatory restriction and the uncertainty associated with the future water supply from the Delta. The ongoing water supply constraints have driven up the costs of Metropolitan Water District of Southern California (MWD) water significantly and have caused MWD to implement a drought allocation plan, where penalty rates are assessed for usage above a member agency's allocation. The critical water supply situation also triggered the State Legislature to issue the 2009 Water Conservation Act (Senate Bill 7 or SB-7), which calls for a 20 percent per capita reduction in water usage by 2020. As a result, water agencies are being forced to take more proactive steps to promote conservation and increase water rates at the same time. Thus, to deal with these challenges, the El Toro Water District (District) is committed to implement the water budget tiered rate structure by July 1st, 2010 to promote water efficiency and ultimately achieve the conservation goals set by SB-7.

The District engaged Raftelis Financial Consultants, Inc (RFC) to conduct the water budget tiered rate study (Study) to appropriately design equitable water budget allocations for residential and irrigation customers and calculate the corresponding water budget tiered rates in compliance with Proposition 218. The water budget tiered rate structure is designed to promote efficient water use and to assure financial sufficiency for the District's daily operations as well as fund capital improvements. This study includes:

- > Development of a financial plan for fiscal year (FY) 2010-11;
- > Development of water budget allocations for residential and irrigation customers;
- > Design of water budget tiered rates for FY 2010-11;

- > Analysis and determination of R&R Capital Charge for water and sewer;
- > Customer impact assessments; and
- > Development of an implementation strategy for the proposed water budget tiered rate structure.

The objectives of the water budget tiered rate structure design and study are to:

- > Design fair and equitable individualized water budget allocations;
- > Promote efficient water use and ultimately achieve conservation; and
- > Enhance revenue stability and financial sufficiency for the District operations.

1.2 Study Findings and Recommendations

1.2.1 Financial Plan and Revenue Adjustments

The principal findings and recommendations of the financial plan of the water rate study are as follows:

- > The MWD is anticipated to increase its water rates by 7.5 percent effective January 1, 2011. The increase in MWD and Municipal Water District of Orange County (MWDOC) rates will be passed on to customers, increasing the expected water supply rate from \$1.72 to \$1.86 per hundred cubic feet (ccf) in FY 2011.
- > To responsibly preserve its water and sewer infrastructure investment, meet regulatory requirements and ensure a continuous high level of service to customers, the District maintains a significant Capital Replacement and Refurbishment (R&R) Program. To minimize financial impacts to customers, the collection of capital facility costs has been phased over

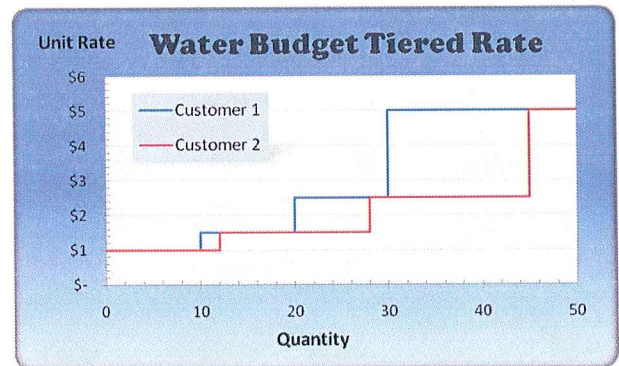
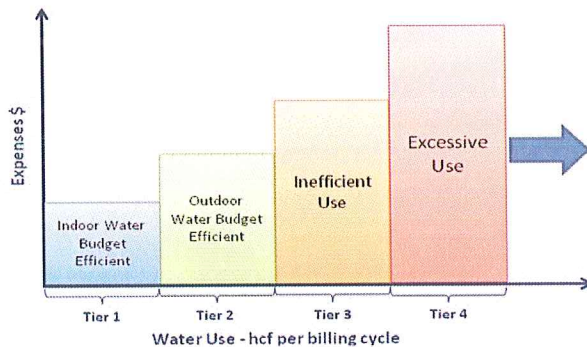
time in conjunction with prudent use of reserves to balance capital facility revenues and expenses. Effective July 1, 2010, the District proposes to equitably adjust the Capital R&R Charge for Water and Sewer to generate an additional \$500,000. This increase coupled with the current Capital R&R Charge revenue will be combined with the use of reserves to fund the 2010/11 Water and Sewer Capital R&R Programs and pay for debt service of the State Revolving Fund (SRF) loan in FY 2011 to finance the construction of the Baker Water Treatment Plant.

- > FY 2011, the District will mitigate the shortfall of

the remaining operations expenses using the water reserves to minimize customer impacts. As a result, there is no revenue adjustment required for the District revenues in FY 2011, collected from monthly water/sewer service charges and water delivery rates.

1.2.2 Water Budget Allocations

The American Water Works Association Journal defines water budget as “the quantity of water required for an efficient level of water use by that customer.” (Source: *American Water Works Association Journal*, May 2008, Volume 100, Number 5)



Water budget allocations are usually broken into two components: indoor water budget and outdoor water budget. In this Study, the water budget allocations and tiered rate structure are designed for residential and irrigation accounts only; all other customer classes will retain the current uniform rate structure.

1.2.2.1 Indoor Water Budget

The indoor water budget (IWB) is determined by a customer's household size and a standard consumption per person. The proposed IWB formula is as follows:

$$IWB = \frac{GPCD * Household Size * Days of Service * DF_{indoor}}{748} + V_{indoor}$$

where:

- > GPCD – Gallons per capita per day. The standard

consumption per person per day is set at 60 gallons based on the AWWARF Residential End Uses of Water Study, which stated that the mean daily water use per capita is 59.8 gallons.

- > Household Size – Number of residents. The default values for household size are set based on customer class
 - » Single Family: Household Size = 4 persons¹
 - » Multi Family:
 - Restricted: Household Size = 2 persons²
 - Unrestricted: Household Size = 3 persons
- > Days of Service. The number of days of service varies with each billing cycle for each customer. The actual number of days of service will be applied to calculate the indoor water budget for each billing cycle.
- > DF_{indoor} – Indoor drought factor. The percentage of indoor water budget allotted during drought condi-

¹ Based on the CA Population as of 1/1/2009, the average household size for Lake Forest and Mission Viejo is 3.014 persons and 2.941 persons, respectively. To balance the administrative costs associated with variance program and the accuracy of the indoor water budget, single family's water allotment is based on 4 persons per household.

² Based on the District's current policy for aged restricted Multi Family customer to qualify for lower sewer rates.



tions. The drought factor is subject to the approval of the District's Board of Directors at different drought stages. The indoor drought factor is currently set at 100%.

- > V_{indoor} – Indoor variance. The additional water allotment to be granted for extenuating circumstances is subject to District's approval or verification as outlined in the variance program (see Section 8 – Implementation Strategy below).
- > 748 is the conversion unit from gallons to billing unit of hundred cubic feet (ccf).

1.2.2.2 Outdoor Water Budget

The outdoor water budget (OWB) is determined based on three main variables: irrigable landscape area, weather data and ET Adjustment Factor. The irrigable landscape area, measured as square footage of landscape surface on a customer's property, is estimated using the Orange County Assessors' parcel data - lot size, building size and number of floors - where the actual irrigable landscape area data is not available. The weather data is based on the reference EvapoTranspiration (ET_0), which is the amount of water loss to the atmosphere over a given time period at given specific atmospheric conditions. ET_0 is the amount of water (in inches of water) needed for a hypothetical reference crop to maintain its health and appearance. The ET Adjustment Factor (ETAF) is a coefficient that adjusts ET_0 values based on a plant factor (PF) and irrigation efficiency (IE). The updated California Department of Water Resources' (DWR) Model Water Efficient Landscape Ordinance (Landscape Ordinance) provides the following ETAF for different landscapes:

- > Existing landscape (Functional³): $ETAF_{\text{Existing}} = 80\%$
- > New development / redevelopment landscape (Functional): $ETAF_{\text{New}} = 70\%$
- > Special landscape (Recreational⁴): $ETAF_{\text{Recreational}} = 100\%$

The formula to calculate outdoor water budget is as follows:

$$OWB = \left(\frac{\text{Landscape Area} * ET_0 * ETAF}{1200} + V_{\text{outdoor}} \right) * DF_{\text{outdoor}}$$

where:

- > ET_0 is measured in inches of water during the billing period based on daily data acquired from the California Irrigation Management Information System ("CIMIS") Station 75, which is the closest station to the District's service area.
- > ETAF (% of ET_0) is defined using the updated Landscape Ordinance as shown above.
- > Landscape Area (or Irrigable Landscape Area) (in square feet) is the measured irrigable landscape area served by customer's meter.
 - » Where the measured irrigable landscape area is not available, the landscape area will be estimated by the following formula using the Orange County Assessors' parcel data.

$$\text{Landscape Area (sq ft)} = 70\% * \left(\text{Lot Size} - \frac{\text{Building Size}}{\text{Number of Floors}} \right)$$

- » For accounts dedicated for domestic use only, such as multi-family units, 25 square feet of irrigable landscape is provided for each dwelling unit for patio plants.
- > DF_{outdoor} – Outdoor drought factor. The percentage of outdoor water budget allotted during drought conditions. The drought factor is subject to the approval of the District's Board of Directors at different drought stages. The outdoor drought factor is currently set at 100%.
- > V_{outdoor} – Outdoor variance. The additional water allotment to be granted for extenuating circumstances is subject to District's approval or verification as outlined in the variance program (see Section 8 – Imple-

³ Functional for landscape which is used for ornamental and decorative purposes, whereas, Recreational for landscape which is used mostly for recreational purposes such as school, park, golf courses.

⁴ Based on CA Code of Regulation, Title 23, Chapter 2.7, Section 491, Special Landscape Area is defined as an area of the landscape dedicated solely to edible plants, areas irrigated with recycled water, water features using recycled water and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.



mentation Strategy). Outdoor variance is subject to outdoor drought factor.

- > 1200 is the conversion unit from inch* ft^2 to billing unit of hundred cubic feet (ccf).

1.2.2.3 Water Budget Allocations by Customer Classes

The table below summarizes the water budget allocation

by customer class. Both Single Family and Multi Family (restricted and unrestricted) customers will receive an indoor and outdoor water budget. Irrigation accounts will only receive an outdoor budget. Commercial and Public Authority (CII⁵) customers will continue with the current uniform water rate structure.

Table 1-1: Water Budget Allocations by Customer Classes

Customer Class	Water Budget Allocations	Default Values
Single Family	IWB + OWB	Household Size = 4 persons ETAF _{New} = 70%; ETAF _{Existing} = 80%
Multi Family - Restricted	IWB + OWB	Household Size = 2 persons ETAF _{New} = 70%; ETAF _{Existing} = 80%
Multi Family - Unrestricted	IWB + OWB	Household Size = 3 persons ETAF _{New} = 70%; ETAF _{Existing} = 80%
Irrigation - Functional*	OWB	ETAF _{New} = 70%; ETAF _{Existing} = 80%
Irrigation - Recreational**	OWB	ETAF _{Recreational} = 100%

Irrigation - Functional: whose landscape is ornamental in nature

Irrigation - Recreational: whose landscape is used mostly for recreational purposes (school, parks, golf etc...)

1.2.3 Tier Definitions

Based on the information in Table 1-1, the tier definitions are developed as shown in Table 1-2 below. The main difference between Single Family / Multi Family

and Irrigation accounts is that Irrigation accounts do not have a Tier 1 allotment which is reserved for indoor use. All three customer classes have their Tier 3 allotment defined as 30% of their respective total water budget.

Table 1-2: Tier Definitions by Customer Classes

Tiers	Single Family	Multi Family	Irrigation
Tier 1 Efficient Indoor Use	100% IWB	100% IWB	0% OWB
Tier 2 Efficient Outdoor Use	100% OWB	100% OWB	100% OWB
Tier 3 Inefficient Use	100% to 130% TWB	100% to 130% TWB	100% to 130% OWB
Tier 4 Unsustainable Use	Above Tier 3	Above Tier 3	Above Tier 3

TWB = Total Water Budget = IWB + OWB

⁵ CII = Commercial / Industrial / Institutions

The tier definitions are tailored to the unique consumption patterns of the District's customers and subject to the District's policy decisions. The proposed tier definitions are based on RFC's usage and impact analysis and numerous policy discussions with the Board. The first priority for water use is essential indoor water use for health, safety and sanitary purposes. Based on the Board direction, indoor water use is eligible for revenue offsets from site leases. Maintaining healthy landscape at efficient water use is non-essential, yet important, thus efficient outdoor water use is required to pay the Tier 2 rate. Any usage above an efficient level is subject to higher charges to fund conservation programs and any other supplemental water supply program. The current water supply is reserved for efficient water use within the District for indoor, outdoor and commercial use. The higher Tier 3 rate serves as warning for inefficient use before incurring heavy penalty for excessive use in Tier 4.

Based on 4-year historical consumption data, Figure 1-1 shows that 45 percent of the usage falls within Tier 1 for indoor use, 32 percent falls within Tier 2 for outdoor use, and about 23 percent within Tiers 3 and 4. Approximate-

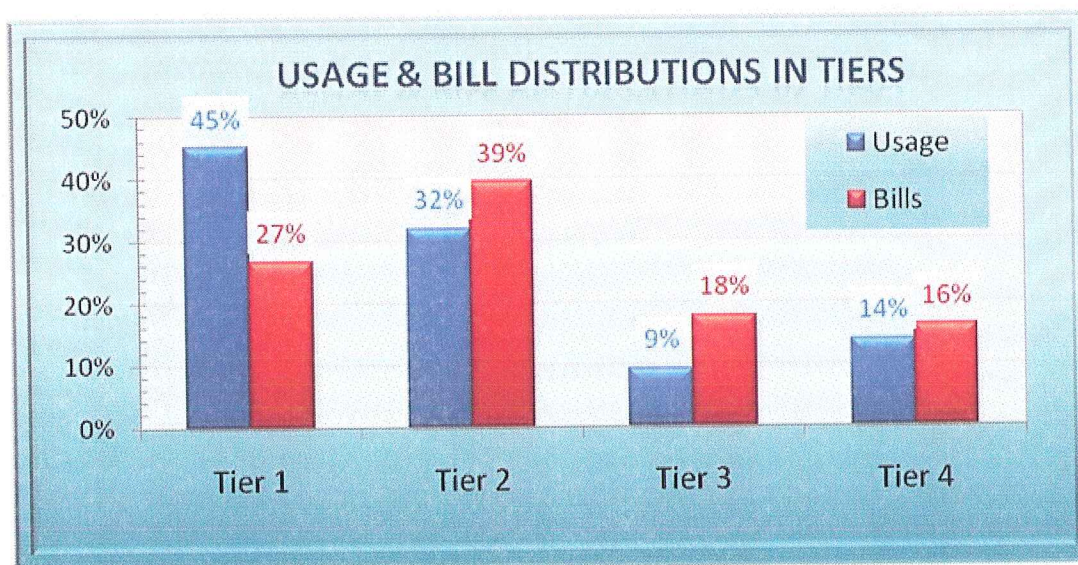
ly 27 percent of the bills will be charged at the Tier 1 rate because their consumption is projected to be within their indoor allotment. Approximately 66 percent of the bills fall within their allotted indoor and outdoor water budget, thus only paying Tier 1 and Tier 2 rates. Approximately 34 percent of the bills will exceed the total water budgets. In order to achieve the conservation goal of 20 percent reduction by 2020 set by the 2009 Water Conservation Act (SB-7), the District will need to focus on Tier 4 and Tier 3 customers to help them achieve efficient water use. Potentially, some of these customers may apply for variances to update their actual household size and/or landscape area inputs.

1.2.4 Proposed Water Budget Tiered Rates

1.2.4.1 Commodity Rates

Proposition 218 requires a nexus between the rate and costs of providing service. To meet this requirement, RFC has identified four different rate components of the commodity rate, including Water Supply, Delivery, Conservation and Revenue Offset, as shown in Table 1-3. The Water Supply component will recover the cost

Figure 1-1: Usage and Bill Distributions for SFR + MFR + IRR Customers





associated with purchasing imported water or developing alternative supply sources. Based on the District's policy, MWDOC allocation of 9,400 acre feet (AF) in FY 2011 is reserved for efficient water usage among Tiers 1, 2, and for CII usage. Using allocation factors described above, RFC has projected that usage in Tiers 1 and 2, plus CII estimated water sales is approximately 9,100 AF (net of loss water of 300 AF), which equals to the MWDOC allocation. Water consumption above this amount is procured from more expensive supplemental sources. In this Study, the Recycled Water Program is utilized as the reference for supplemental water supply costs. To ensure water is affordable for health, safety and sanitary purposes, the District decided to utilize 75 percent of the income from site lease to provide revenue offset against water supply cost for Tier 1 usage.

Delivery charge recovers the remaining operations and maintenance costs incurred by the District in delivering

water from MWDOC to the customer site. Property tax is used to offset delivery revenue requirements for Tier 1 usage based on the District's policy of providing essential indoor water use for health, safety and sanitary purposes at an affordable rate. Since Tier 4 usage is projected to decline over time as the customers improve their water use efficiency, the delivery charge is applied against Tier 2 and Tier 3 usage. Conservation program costs are allocated to Tiers 3 and 4, so that customers that need conservation pay for this program. The District is expected to focus its conservation efforts on these customers.

The tiered commodity rates are summarized below for SFR, MFR and IRR customers. The tiered rate will send out a strong conservation signal to inefficient customers and meet the legal requirements of Proposition 218. CII rates will increase to \$2.03 per ccf to reflect the higher water supply cost while retaining the current delivery charges.

Table 1-3: Commodity Rates (\$/ccf)

Tiers	Current Rates	Proposed Rates				Total
		Water Supply	Delivery	Conservation	Offset *	
Tier 1		\$1.86			(\$0.06)	\$1.80
Tier 2	\$1.89	\$1.86	\$0.34			\$2.20
Tier 3	\$1.89	\$3.80	\$0.34	\$0.24		\$4.38
Tier 4	\$1.89	\$5.70		\$0.24		\$5.94
Uniform Rate	\$1.89	\$1.86	\$0.17			\$2.03

* Offset using Income from Site Lease based on District's policy

1.2.4.2 Monthly Service Charges

The District's financial plan indicates that in FY 2011, there is no overall revenue adjustment for the District's operations. As a result, the monthly service charge remains unchanged.

1.2.4.3 Capital R&R Charges

The Water Capital R&R Charge is a flat charge based on meter size as shown in the table below. The flat charges for each meter size are calculated based on an analysis of actual consumption for each meter size. The residential

sewer Capital R&R Charge is based on dwelling units in a manner similar to the current assessment of the Sewer O&M Charge. Non-residential classes including the Commercial and Public Authority classes are billed monthly for the Sewer O&M Charge based on wastewater flow. Refer to the "FY 2010/11 Budget Capital R&R Charge Engineering Report" prepared by the Engineering Department of the District in Appendix III for rate setting methodology for both water and sewer Capital R&R Charges.

**Table 1-4: Monthly Water Capital R&R Charges**

Meter Size	Capital R&R Charges	
	Current	Proposed
5/8-inch	\$2.21	\$3.31
3/4-inch	\$2.21	\$3.31
1-inch	\$3.70	\$5.54
1 1/2-inch	\$8.99	\$13.46
2-inch	\$22.56	\$33.77

Table 1-5: Monthly Sewer Capital R&R Charges

Residential Class	Monthly Sewer Capital Replacement & Refurbishment Charge (\$/EDU)
Single Family Residential Condominiums Trailer Park Unrestricted	\$4.55
Laguna Woods Village Trailer Park Restricted Multi-Family Restricted	\$3.61
Multi Family Unrestricted	\$4.29

Meter Size	Commercial	Public Authority
5/8"	\$6.42	-
3/4"	\$7.34	-
1"	\$12.38	\$4.55
1 1/2"	\$25.60	\$20.48
2"	\$68.77	\$35.20

1.2.5 Customer Impacts

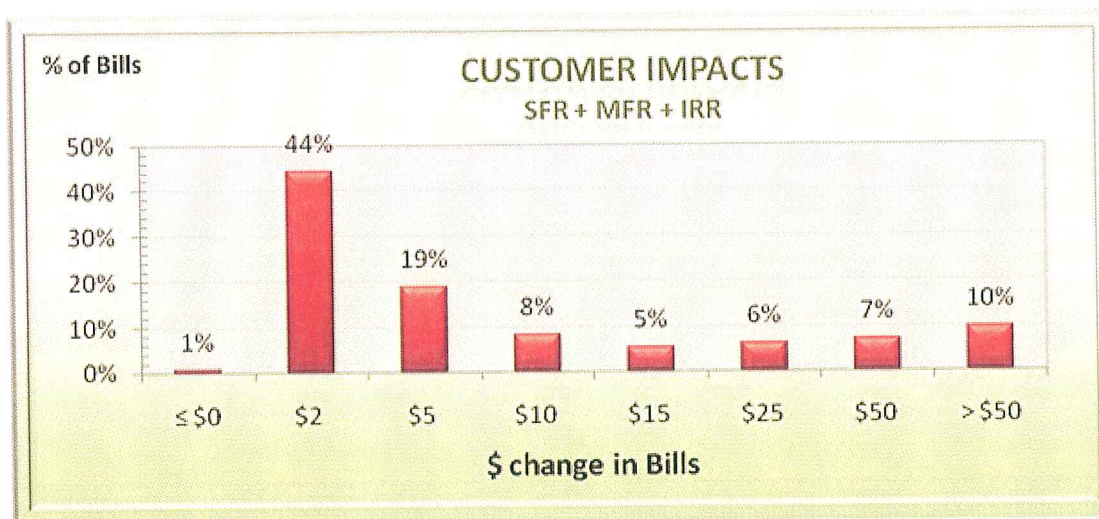
Before implementing any rate structure recommendations, it is important to understand how the proposed rate structure would impact water customers. In the figures below, customer impacts are presented for each customer class, SFR, MFR and IRR. The customer impacts are driven by the three main changes:

- > The change from the uniform rate to water budget tiered rate;

- > The increase in water supply cost from MWDOC; and
- > The increase in capital R&R.

Figure 1-2 below shows that the proposed rates will cause approximately 45 percent of all the customer bills to increase \$2 or less and 19 percent of the bills to increase by \$2 to \$5. More than 70 percent of the bills will experience an increase of \$10 or less in the monthly bills. Approximately 10 percent of all the water budget bills will have more than a \$50 increase.

Figure 1-2: Rate Ramifications for All Water Budget Customers



1.2.6 Rate Survey

Comparing water rates with other neighboring communities can provide insights into a utility's water services pricing policies. However, care should be taken in drawing conclusions from such a comparison, as higher rates may not necessarily mean the utilities are operated and managed poorly. Many factors affect the level of costs and pricing structure employed to recover those costs. Some of the most prevalent factors include source of wa-

ter supply, demand, age of system, level of grant funding, level of property tax revenue and rate setting methodology. Presented below is the residential water budget rate comparison of the District's proposed commodity rates with Irvine Ranch Water District for its Los Alisos service area and San Juan Capistrano Water District. For reference, Appendix I summarizes different water budget rate structures utilized by other agencies in Southern California.

Table 1-6: Residential Water Budget Rate Survey

Commodity Rates (\$ / ccf)						
Tiers	ETWD Residential		Irvine Ranch Water District Los Alisos Residential		San Juan Capistrano Residential < 7,000 sq ft lot	
	Proposed	7/1/2010	Effective	7/28/2009	Effective	2/1/2010
Tier 1	Indoor WB	\$ 1.80	0-40% WB	\$ 1.40	6 ccf	\$ 2.47
Tier 2	Outdoor WB	\$ 2.20	41-100% WB	\$ 1.78	3 ccf + Outdoor	\$ 3.29
Tier 3	30%(IWB+OWB)	\$ 4.38	101-150% WB	\$ 2.75	up to 200% WB	\$ 4.94
Tier 4	above Tier 3	\$ 5.94	150-200% WB	\$ 4.65	over 200% WB	\$ 9.05
Tier 5			201% WB +	\$ 9.30	* Net irrigable Area = 3,636 sq ft	



1.2.7 Implementation Schedule

The new capital R&R charges and water budget tiered rate structure is scheduled to be implemented on July 1st, 2010. One of the District's pricing objectives is to minimize customer impacts. RFC proposes that the Tier 3 and Tier 4 rates are implemented in three phases, to smooth out the transition for customers from uniform

rate to water budget tiered rates. Effective July 1st, 2010, Tier 3 and Tier 4 rates are set at Tier 2 rate at \$2.20 per ccf. On November 1st, 2010, the Tier 3 will be increased to \$3.29 per ccf and Tier 4 will be \$4.07. Starting January 1st, 2011, the full rates for all tiers will be effective as shown in Table 1-7 below.

Table 1-7: Commodity Rates Implementation Schedule

Tiers	Phase-In Proposed Rates		
	Effective July 1st	Effective Nov 1st	Effective Jan 1st
Tier 1	\$1.80	\$1.80	\$1.80
Tier 2	\$2.20	\$2.20	\$2.20
Tier 3	\$2.20	\$3.29	\$4.38
Tier 4	\$2.20	\$4.07	\$5.94
Uniform Rate for CII	\$2.03	\$2.03	\$2.03

CII: Commercial / Industrial / Institutional (Public Authority)

1.2.8 Variance Program

The variance program will allow customers to request changes to their water budget based on household size, landscape area, or other extenuating circumstances. This

process will provide truly individualized water budgets. The variance process (refer to Appendix II for the variance form) will be initiated along with the water budget rate implementation on July 1st, 2010.

2. INTRODUCTION

2.1 Background

The El Toro Water District (District), located within the southern portion of the Orange County, was formed in 1960 under provisions of California Water District Law, Division 13 of the Water Code of the State of California, commencing with Section 34000, for the purpose of providing water supply for the service area. The District is governed by a publicly elected Board of Directors. The District is built out and encompasses all of the City of Laguna Woods and portions of four other cities: Lake Forest, Aliso Viejo, Laguna Hills and Mission Viejo.

The District provides water service to a population of approximately 51,000 in a service area of approximately 8.5 square miles. The District's water system is relatively modern, built in phases since 1960 with 6 reservoirs of combined capacity of 136 million gallons, over 170 miles of water lines and 8 booster stations with 13 pressure zones to deliver water to approximately 10,000 metered water accounts.

2.2 Objectives of the Study

Southern California water agencies are facing water resource challenges including statewide drought, the Delta regulatory restriction and the uncertainty associated with the future water supply from the Delta. The ongoing water supply constraints have driven up the costs of Metropolitan Water District of Southern California (MWD) water significantly and have caused MWD to implement a drought allocation plan, where penalty rates are assessed for usage above a member agency's allocation. The critical water supply situation also triggered the State Legislature to issue the 2009 Water Conservation Act (Senate Bill 7 or SB-7), which calls for a 20 percent per capita reduction in water usage by 2020. As a result, water agencies are being forced to take more proactive

steps to promote conservation and increase water rates at the same time. Thus, to deal with these challenges, the District is committed to implement the water budget tiered rate structure by July 1st, 2010 to promote water efficiency and ultimately achieve the conservation goals set by SB-7.

The District engaged Raftelis Financial Consultants, Inc (RFC) to conduct the water budget tiered rate study (Study) to appropriately design equitable water budget allocations for residential and irrigation customers and calculate the corresponding water budget tiered rates in compliance with Proposition 218. The water budget tiered rate structure is designed to promote efficient water use and to assure financial sufficiency for the District's daily operations as well as fund capital improvements. This study includes:

- > Development of a financial plan for fiscal year (FY) 2010-11;
- > Development of water budget allocations for residential and irrigation customers;
- > Design of water budget tiered rates for FY 2010-11;
- > Analysis and determination of R&R Capital Charge for water and sewer;
- > Customer impact assessments; and
- > Development of an implementation strategy for the proposed water budget tiered rate structure.

The objectives of the water budget tiered rate structure design and study are to:

- > Design fair and equitable individualized water budget allocations;
- > Promote efficient water use and ultimately achieve conservation; and
- > Enhance revenue stability and financial sufficiency for the District operations.



3. REVENUE ADJUSTMENTS

3.1 Review of Current Water Rate Structure and Water System

The District imports all of its water supply from the Municipal Water District of Orange County (MWDOC), which is a member agency of MWD. Due to its dependence on imported water as its sole water source, the District currently has a pass-through system to recover the imported water cost increases of MWD. The current water rate structure of the District consists of four components:

- > Monthly service charge varying by meter size;
- > Capital replacement and refurbishment (R&R) monthly charge varying by meter size;
- > Volumetric delivery rate of \$0.17 per ccf⁶; and
- > MWDOC imported water rate for purchased water costs.

Table 3-1 summarizes the current water rates.

Table 3-1: Current Water Rate Structure

Effective Date 7/1/2009

Meter Size	Monthly Service Charge	Monthly Capital R&R Fees	Commodity Rates (\$ / ccf)	
5/8	\$ 7.60	\$ 2.21	Water Delivery	\$ 0.17
3/4	\$ 10.14	\$ 2.21	Purchased Water	\$ 1.72
1	\$ 15.20	\$ 3.70	Number of Bills / yr	12
1 1/2	\$ 27.87	\$ 8.99		
2	\$ 53.22	\$ 22.56	1 ccf (hundred cubic feet) = 748 gallons	

⁶ 1 ccf (or hundred cubic feet) = 748 gallons

Based on the usage data for FY 2009 provided by the District, RFC summarized the breakdown of potable water usage by customer class in the figures below. Approximately 85 percent of the metered accounts are residential. Residential customers, including single family residential (SFR) and multi-family residential (MFR), use approximately 58 percent of the total water of the

District. Approximately 8 percent of the metered accounts are dedicated irrigation (IRR) customers who consume about 29 percent of the water in the District. Commercial and Public Authority (or Commercial/Industrial / Institutions – CII) customers, representing approximately 8 percent of metered accounts, consume about 12 percent of the District’s total water in FY 2009.

Figure 3-1: Account Summary by Customer Class

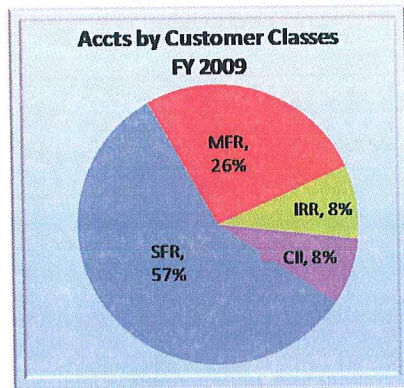
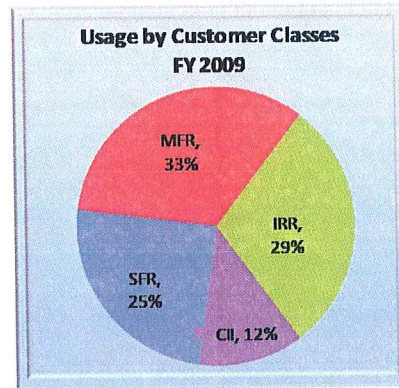


Figure 3-2: Usage Summary by Customer Classes



3.2 Proposed Revenue Adjustments

The District’s philosophy is to provide water used for health, safety and sanitary purposes at an affordable rate. Thus, although the District’s operating revenue requirements are projected to increase in FY 2010-2011, the District decided to fund the increase using cash reserves in order to keep the monthly service charge and the delivery revenue requirements unchanged.

MWD is anticipated to increase its water rates by 7.5 percent effective January 1, 2011. The increase in MWD and MWDOC rates will be passed on to customers, increasing the water supply rate from \$1.72 to \$1.86 per ccf in FY 2011.

To responsibly preserve its water and sewer infrastructure investment, meet regulatory requirements and ensure a continuous high level of service to customers, the District maintains a significant Capital Replacement and Refurbishment (R&R) Program. To minimize financial impacts to customers, the collection of capital facility costs

has been phased over time in conjunction with prudent use of reserves to balance capital facility revenues and expenses. The District’s proposed 5-year Capital R&R Program requires average annual revenue of \$3,000,000. The current charges levied for both water and sewer collect \$2,000,000 annually. The proposed rate change will increase the capital charges to generate an additional \$500,000 in revenue bringing the total annual revenue from the capital charges to \$2,500,000. It is the District’s goal to continue to minimize the financial impact to the customer by phasing the collection of increased capital facility revenue with prudent use of reserves.

Effective July 1, 2010, the District proposes to equitably adjust the Capital R&R Charge for water to generate an additional \$350,000. This increase coupled with the current Capital R&R Charge revenue will be combined with the use of reserves to fund the 2010/11 Water Capital R&R Program. The Capital R&R Charge for sewer is proposed to collect \$1.47 million, an increase of \$150,000 from the current sewer capital R&R revenues of \$1.32 million.



4. REVIEW OF CUSTOMER CLASSES

4.1 Review of Current Customer Classes

Currently, the District has 10 Customer Classes under the five main categories as listed in the table below. In

this Study, the water budget rate structure is only applicable to SFR, MFR, and IRR. All the other customer classes retain the current uniform rate structure composed of delivery charges and purchased water rates.

Table 4-1: Current Customer Classes

Category	Bill Class	Current Customer Classes	# of Accts *	Usage (AF)
Single Family Residential ("SFR")	1	Single Family	5,673	2,711
Multi Family Residential ("MFR")	9	Multi Family (apartments)	542	3,664
	6	Leisure World	1,021	
	8	Trailer Parks	30	
	3	Condos	1,020	
Irrigation ("IRR")	10	Dedicated Irrigation Accts	836	3,227
CII	2	Commercial	742	1,343
	4	Public Authority	22	
Other	5	Flood Meters	5	N/A
	7	Private Fire Systems	154	
Total			9,886	10,945

CII = Commercial / Industrial / Institutional

* Based on FY 2009 data

AF = Acre feet = 435.6 ccf

4.2 Recommendations of New Customer Classifications

After working closely with the District staff, the following modifications to new customer classifications are recommended to encourage water conservation.

New development/redevelopment SFR, MFR, and IRR customers will be classified as such and will be subject to the "New" subclass which will have different ET Adjustment Factor (see Section 5.1 below) for its outdoor water budget. Table 4-2 summarizes the proposed customer classes.

Table 4-2: Proposed New Customer Classes

Category	Bill Class	New Customer Classes	Subclass
Single Family Residential ("SFR")	1	Single Family	New Existing
Multi Family Residential ("MFR")	3, 6, 8 & 9	Multi Family	Restricted - New Restricted - Existing Unrestricted - New Unrestricted - Existing
Irrigation ("IRR")	10	Irrigation	Functional- New Functional - Existing Recreational



5. WATER BUDGET ALLOCATIONS

The American Water Works Association defines a water budget as “the quantity of water required for an efficient level of water use by that customer.” (Source: *American Water Works Association Journal*, May 2008, Volume 100, Number 5)

5.1 Water Budget Allocations

Water budget allocations are usually broken into two components: indoor water budget and outdoor water budget. Both components are based on default allocation factors decided by the District as policy options. Customer-specific factors are subject to variance programs to enhance the accuracy of the individualized allocations and to achieve equitable allocations.

5.1.1 Indoor Water Budget

The indoor water budget (IWB) is determined by a customer’s household size and a standard consumption per person. The proposed IWB formula is as follows:

$$\text{IWB} = \frac{\text{GPCD} * \text{Household Size} * \text{Days of Service} * \text{DF}_{\text{indoor}}}{748} + V_{\text{indoor}}$$

where:

- > GPCD – Gallons per capita per day. The standard consumption per person per day is set at 60 gallons based on the *AWWARF Residential End Uses of Water Study*, which stated that the mean daily water use per capita is 59.8 gallons.
- > Household Size – Number of residents. The default values for household size are set based on customer class
 - » Single Family: Household Size = 4 persons⁷
 - » Multi Family:
 - Restricted: Household Size = 2 persons⁸
 - Unrestricted: Household Size = 3 persons
- > Days of Service. The number of days of service varies with each billing cycle for each customer. The actual number of days of service will be applied to calculate the indoor water budget for each billing cycle.
- > $\text{DF}_{\text{indoor}}$ – Indoor drought factor. The percentage of indoor water budget allotted during drought conditions. The drought factor is subject to the approval of the District’s Board of Directors at different drought stages. The indoor drought factor is currently set at 100%.
- > V_{indoor} – Indoor variance. The additional water allotment to be granted for extenuating circumstances is subject to District’s approval or verification as outlined in the variance program (see Section 8 – Implementation Strategy below).
- > 748 is the conversion unit from gallons to billing unit of hundred cubic feet (ccf).

For illustrative purposes, the following indoor water budget calculations for two different customers are shown.

- > Customer #1: Household Size = 4 persons, Days of Service in January bill = 30 days, No variance

$$\text{IWB} = \frac{60 \text{ gallons/person/day} * 4 \text{ persons} * 30 \text{ days} * 100\%}{748 \text{ gallons/ccf}} = 10 \text{ ccf}^9$$

- > Customer #2: Household Size = 6 persons, Days of Service in January bill = 28 days, Medical need variance = 2 ccf per billing cycle

$$\text{IWB} = \frac{60 \text{ gallons/person/day} * 6 \text{ persons} * 28 \text{ days} * 100\%}{748 \text{ gallons/ccf}} + 2 \text{ hcf} = 16 \text{ ccf}^{10}$$

5.1.2 Outdoor Water Budget

The outdoor water budget (OWB) is determined based on three main variables: irrigable landscape area, weather data and ET Adjustment Factor. The irrigable landscape area, measured as square footage of landscape surface on a customer’s property, is estimated using the

⁷ Based on the CA Population as of 1/1/2009, the average household size for Lake Forest and Mission Viejo is 3.014 persons and 2.941 persons, respectively. To balance the administrative costs associated with variance program and the accuracy of the indoor water budget, single family’s water allotment is based on 4 persons per household.

⁸ Based on the District’s current policy for aged restricted Multi Family customer to qualify for lower sewer rates

⁹ Rounded up from 9.6 ccf

¹⁰ Rounded up from 15.47 ccf

Orange County Assessors' parcel data - lot size, building size and number of floors - where the actual irrigable landscape area data is not available. The weather data is based on the reference EvapoTranspiration (ET_0), which is the amount of water loss to the atmosphere over a given time period at given specific atmospheric conditions. ET_0 is the amount of water (in inches of water) needed for a hypothetical reference crop to maintain its health and appearance. The ET Adjustment Factor (ETAF) is a coefficient that adjusts ET_0 values based on a plant factor (PF) and irrigation efficiency (IE). The updated California Department of Water Resources' (DWR) Model Water Efficient Landscape Ordinance (Landscape Ordinance) provides the following ETAF for different landscapes:

- > Existing landscape (Functional¹¹): $ETAF_{Existing} = 80\%$
- > New development / redevelopment landscape (Functional): $ETAF_{New} = 70\%$
- > Special landscape (Recreational¹²): $ETAF_{Recreational} = 100\%$

The formula to calculate outdoor water budget is as follows:

$$OWB = \left(\frac{\text{Landscape Area} * ET_0 * ETAF}{1200} + V_{outdoor} \right) * DF_{outdoor}$$

where:

- > ET_0 is measured in inches of water during the billing period based on daily data acquired from the California Irrigation Management Information System (CIMIS) Station 75, which is the closest station to El Toro Water District's service area.
- > ETAF (% of ET_0) is defined using the updated Landscape Ordinance as shown above.
- > Landscape Area (or Irrigable Landscape Area) (in square feet) is the measured irrigable landscape area served by the customer's meter.
 - » Where the measured irrigable landscape area is

not available, the landscape area will be estimated by the following formula using the Orange County Assessors' parcel data.

$$\text{Landscape Area (sq ft)} = 70\% * \left(\text{Lot Size} - \frac{\text{Building Size}}{\text{Number of Floors}} \right)$$

- » For accounts dedicated for domestic use only, such as multi-family units, 25 square feet of irrigable landscape is provided for each dwelling unit for patio plants.
- > $DF_{outdoor}$ – Outdoor drought factor. The percentage of outdoor water budget allotted during drought conditions. The drought factor is subject to the approval of the District's Board of Directors at different drought stages. The outdoor drought factor is currently set at 100%.
- > $V_{outdoor}$ – Outdoor variance. The additional water allotment to be granted for extenuating circumstances is subject to District's approval or verification as outlined in the variance program (see Section 8 – Implementation Strategy). Outdoor variance is subject to outdoor drought factor.
- > 1200 is the conversion unit from inch* ft^2 to billing unit of hundred cubic feet (ccf).

For illustrative purposes, the following outdoor water budget calculations for two different customers are shown.

- > Customer #1 – Existing Single Family: Landscape Area = 8,000 sq ft, ET_0 for 30-day January bill = 2.25 inches, No variance

$$OWB = \left(\frac{8,000 \text{ sq ft} * 2.25 \text{ inches} * 80\%}{1200} \right) * 100\% = 12 \text{ ccf}$$

- > Customer #2 – Existing Single Family: Landscape Area = 4,000 sq ft, ET_0 for 28-day January bill = 2.05 inches, Variance = 1 ccf per billing cycle for right of ways

$$OWB = \left(\frac{4,000 \text{ sq ft} * 2.05 \text{ inches} * 80\%}{1200} + 1 \text{ hcf} \right) * 100\% = 7 \text{ ccf}^{13}$$

¹¹ Functional for landscape which is used for ornamental and decorative purposes. Recreational for landscape which is used mostly for recreational purposes such as school, park, golf courses

¹² Based on CA Code of Regulation, Title 23, Chapter 2.7, Section 491, Special Landscape Area is defined as an area of the landscape dedicated solely to edible plants, areas irrigated with recycled water, water features using recycled water and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.

¹³ Rounded up from 6.47 ccf

5.2 Water Budget Allocations by Customer Classes

The table below summarizes the water budget allocation by customer class. Both Single Family and Multi Family

(restricted and unrestricted) customers will receive an indoor and outdoor water budget. Irrigation accounts will only receive an outdoor budget. Commercial and Public Authority (CII¹⁴) customers will continue with the current uniform water rate structure.

Table 5-1: Water Budget Allocations by Customer Classes

Customer Class	Water Budget Allocations	Default Values
Single Family	IWB + OWB	Household Size = 4 persons ETAF _{New} = 70%; ETAF _{Existing} = 80%
Multi Family - Restricted	IWB + OWB	Household Size = 2 persons ETAF _{New} = 70%; ETAF _{Existing} = 80%
Multi Family - Unrestricted	IWB + OWB	Household Size = 3 persons ETAF _{New} = 70%; ETAF _{Existing} = 80%
Irrigation - Functional	OWB	ETAF _{New} = 70%; ETAF _{Existing} = 80%
Irrigation - Recreational	OWB	ETAF _{Recreational} = 100%

Irrigation - Functional: whose landscape is ornamental in nature

Irrigation - Recreational: whose landscape is used mostly for recreational purposes (school, parks, golf etc...)

5.3 Tier Definitions

Based on the information in Section 5.2 above, the tier definitions are developed as shown in the table below. The main difference between Residential (Single Fam-

ily and Multi Family) and Irrigation accounts is that Irrigation accounts do not have a Tier 1 allotment which is reserved for essential indoor use. All three customer classes have their Tier 3 allotment defined as 30% of their respective total water budget.

Table 5-2: Tier Definitions by Customer Classes

Tiers	Single Family	Multi Family	Irrigation
Tier 1 Efficient Indoor Use	100% IWB	100% IWB	0% OWB
Tier 2 Efficient Outdoor Use	100% OWB	100% OWB	100% OWB
Tier 3 Inefficient Use	100% to 130% TWB	100% to 130% TWB	100% to 130% OWB
Tier 4 Unsustainable Use	Above Tier 3	Above Tier 3	Above Tier 3

TWB = Total Water Budget = IWB + OWB

¹⁴ CII = Commercial / Industrial / Institutions

The tier definitions are tailored to the unique consumption patterns of the District's customers and subject to the District's policy decisions. The proposed tier definitions are based on RFC's usage and impact analysis and numerous policy discussions with the Board. The first priority for water use is essential indoor water use for health, safety and sanitary purposes. Based on the Board direction, indoor water use is eligible for revenue offsets from site leases. Maintaining healthy landscape at efficient water use is non-essential, yet important, thus efficient outdoor water use is required to pay the Tier 2 rate. Any usage above an efficient level is subject to higher charges to fund conservation programs and any other supplemental water supply program. The current water supply is reserved for efficient water use within the District for indoor, outdoor and commercial use. The higher Tier 3 rate serves as warning for inefficient use before incurring heavy penalty for excessive use in Tier 4.

5.4 Usage Analysis

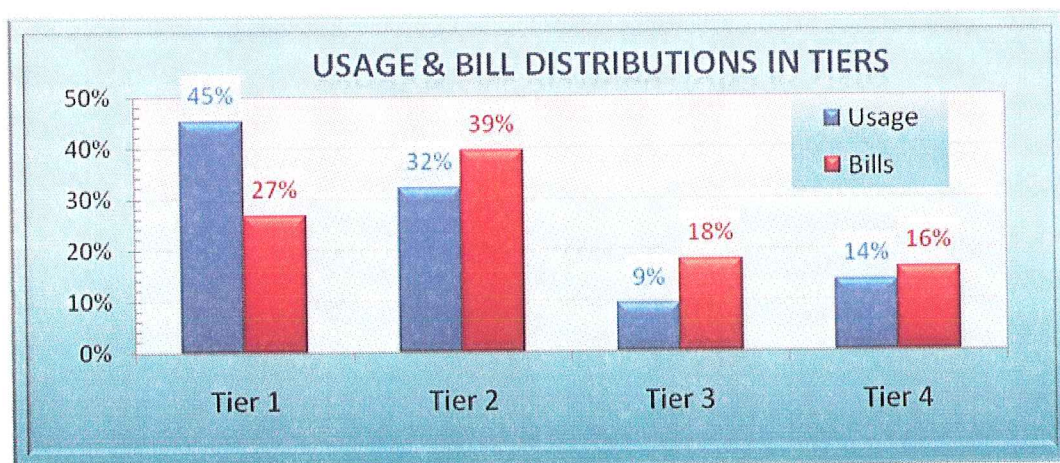
The usage analyses are performed for all three customer classes and on aggregate level to ensure that:

- > The water budget allocation provides adequate, rea-

- sonable amount of water for the District's customers;
- > The District can prepare for the potential customers who may apply for variances;
- > The District's conservation team is focused on inefficient customers;
- > The financial implication of the water sales reduction due to conservation achievement is addressed; and
- > The District can make informed policy decisions.

Figure 5-1 shows that 45 percent of the usage falls within Tier 1 for indoor use, 32 percent falls within Tier 2 for outdoor use, and about 23 percent within Tiers 3 and 4. Approximately 27 percent of the bills will be charged at the Tier 1 rate because their consumption is projected to be within their indoor allotment. Approximately 66 percent of the bills fall within their allotted indoor and outdoor water budget, thus only paying Tier 1 and Tier 2 rates. Approximately 34 percent of the bills will exceed the total water budgets. In order to achieve the conservation goal of 20 percent reduction by 2020 set by the 2009 Water Conservation Act (SB-7), the District will need to focus on Tier 4 and Tier 3 customers to help them achieve efficient water use. Potentially, some of these customers may apply for variances to update their actual household size and/or landscape area inputs.

Figure 5-1: Usage and Bill Distributions for SFR + MFR + IRR Customers



5.4.1 Single Family

More than 90 percent of all single family usage and parcel data are incorporated into the analysis. Using the water budget allocations and tier definitions above, the usage and bill distributions for single family customers are shown below. Figure 5-2 shows that 52 percent of total SFR usage is assessed at the Tier 1 rate for indoor use, 35 percent is assessed at Tier 2 for outdoor use, and about 13 percent is charged the higher rates for inefficient use.

Approximately 69 percent of the bills have usage within their allotted indoor and outdoor water budget, thus only paying Tier 1 and Tier 2 rates. Approximately 32 percent of the bills will exceed the total water budgets. In order to achieve the conservation goal of 20 percent reduction by 2020 set by the 2009 Water Conservation Act (SB-7), the District will need to focus on Tiers 4 and 3 customers to help them achieve efficient water use.

Figure 5-2: SFR Usage & Bill Distributions

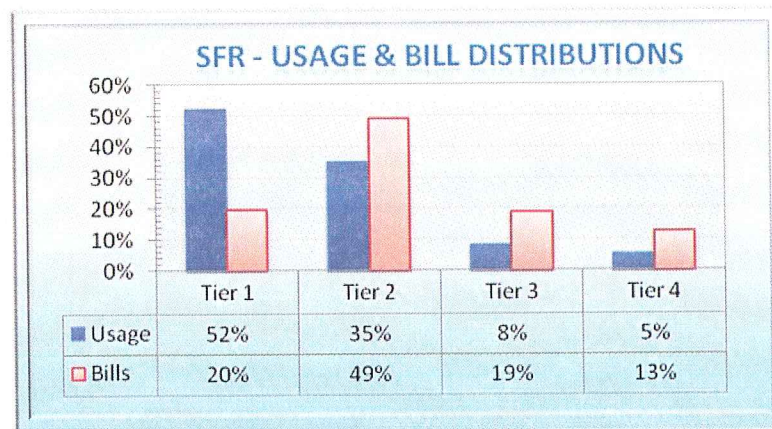


Figure 5-3 represents the bill frequency of SFR bills. Approximately 11 percent of the bills have usage exceeding 140 percent of total water budget. These customers will be considered excessive water users and be the prime

targets for the District's conservation program. Approximately 20 percent of the bills have usage above 100% of total water budget but less than 140% of total water budget.

Figure 5-3: SFR Bill Frequency

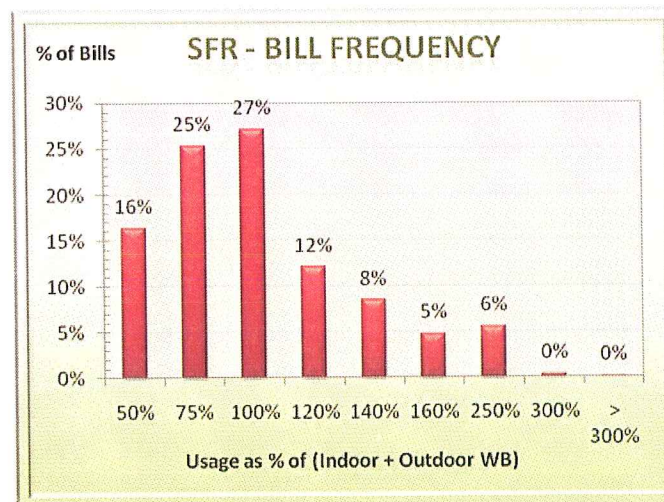
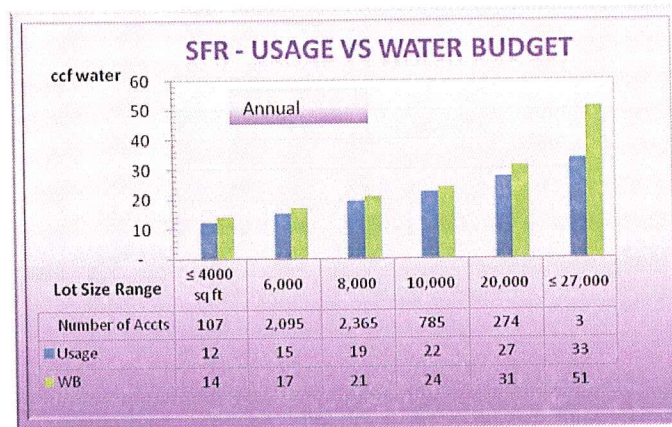


Figure 5-4 compares the average SFR monthly usage with average monthly water budget for Single Family customers with different lot sizes. For customers with lot size smaller than 4,000 square feet ("sq ft"), the average usage is 12 ccf per month, while the allocated water budget for these customers averages 14 ccf per month. This figure shows that the water budget allocations provide adequate

water for customers with different lot sizes on the average. This figure also shows the landscape distribution for single family customers. About 81 percent of the customers have lot sizes smaller than 8,000 sq ft. In addition, the average usage increases at a smaller rate than the increase in the water budget with increase in lot sizes.

Figure 5-4: SFR - Average Usage and Water Budget Comparisons



5.4.2 Multi Family

Approximately 70 percent of MFR customers are included in the analysis. Most of the MFR accounts have separate meters for irrigation use. All the meters in the current bill class 9 (Multi Family, which are apartments) are for domestic use only. In addition, many condominium parcels do not have irrigable landscape area. As a

result, the usage distribution for MFR customers shows that 65 percent of total usage is indoor use as shown in Figure 5-5 below. Approximately 53 percent of MFR bills consume only Tier 1 usage. About 33 percent of the usage is considered inefficient or excessive use, representing 39 percent of the MFR bills.

Figure 5-5: MFR - Usage & Bill Distributions

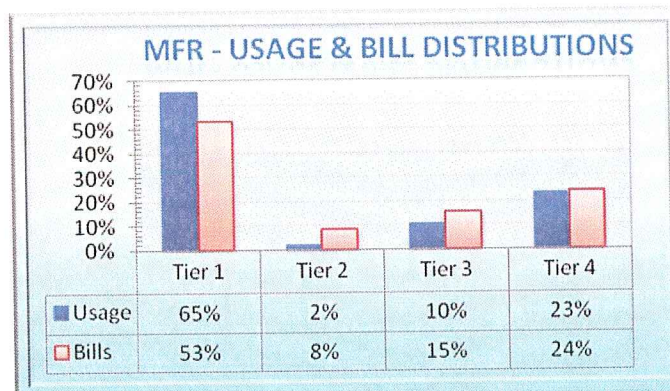
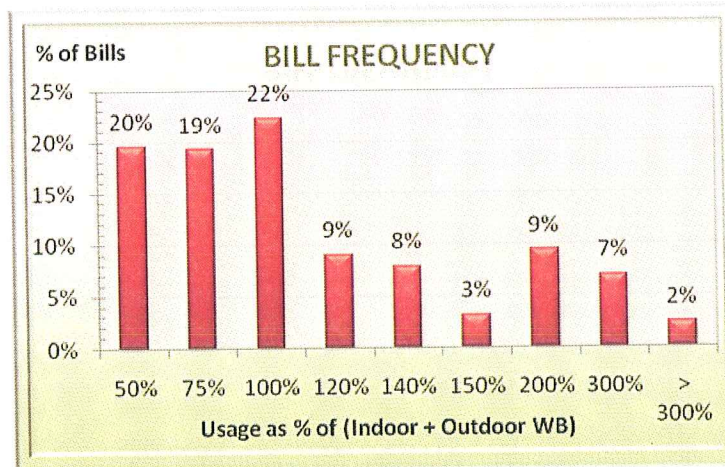


Figure 5-6 represents the bill frequency of MFR bills. Approximately 21 percent of the bills have usage exceeding 140 percent of total water budget. These customers will be considered excessive water users and be the prime

targets for the District's conservation program. Approximately 17 percent of the bills have usage above 100% of total water budget but less than 140% of total water budget.

Figure 5-6: MFR - Bill Frequency



5.4.3 Irrigation

Approximately 50 percent of dedicated irrigation customers are included in the analysis. Tier 2 is defined as efficient outdoor water use, thus IRR usage will have no Tier 1 usage as indicated in Figure 5-7 below.

Approximately 53 percent of IRR bills consume only Tier 2 usage. About 24 percent of the usage is considered inefficient or excessive use, representing 47 percent of the IRR bills.

Figure 5-7: IRR - Usage and Bill Distributions

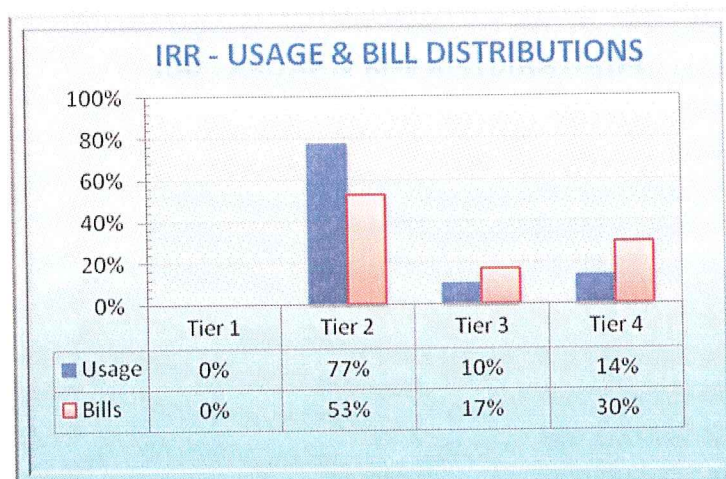


Figure 5-8 presents the bill frequency of IRR bills. Approximately 31 percent of the bills have usage exceeding 130 percent of total water budget¹⁵. These customers may be considered excessive water users and be the prime

targets for the District's conservation program. Approximately 16 percent of the bills have usage above 100% of total water budget but less than 130% of total water budget.

Figure 5-8: Irrigation - Bill Frequency

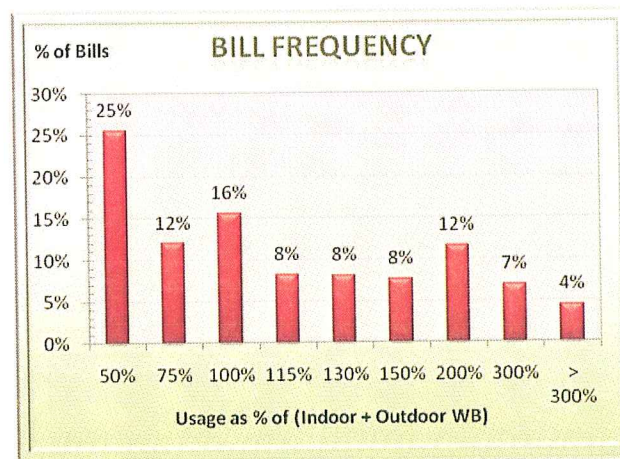
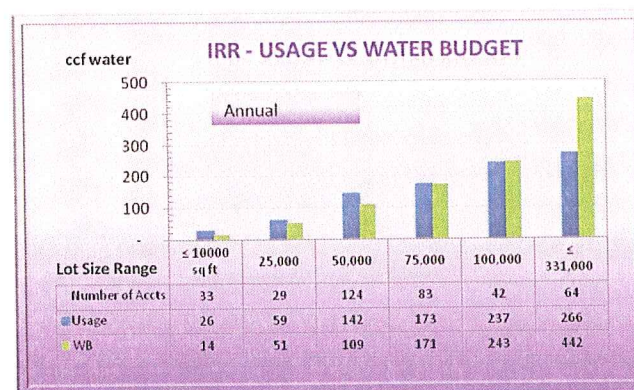


Figure 5-9 compares the average IRR monthly usage with the average monthly water budget for dedicated irrigation customers with different lot sizes. For customers with lot size smaller than 10,000 sq ft, the average usage is 26 ccf per month, while the allocated water budget for these customers averages to 14 ccf per month (186% of outdoor water budget). However, as the lot size increases, the difference starts to reduce. This figure shows

that the larger lots are using water more efficiently than smaller lots. This is consistent with the water savings per device summarized by Save Water – Save A Buck Program established by MWD. Weather-Based Irrigation Controllers (WBIC) are most efficient for irrigable lots larger than 1 acre. Thus, the District's conservation team can assist the customers with small lot sizes to enhance their water use efficiency.

Figure 5-9: Irrigation - Average Usage & Water Budget Comparisons



¹⁵ The usage distributed to each tier is rounded up to the nearest integer. For example, a customer with 31 ccf outdoor water budget consumes 40hcf, the tier distribution will be: Tier 2 - 30 ccf, Tier 3 - 30% of 31hcf or 9.3 ccf rounded up to 10 ccf and Tier 4 - 0 ccf. In reality, the usage is 133% of the water budget. Thus, the bill frequency and the bill distribution will not match exactly.

6. PROPOSED RATES

6.1 Commodity Rate Calculations

Proposition 218 requires a nexus between the rate and costs of providing service. To meet this requirement, RFC has identified four different rate components of the commodity rate, including Water Supply, Delivery, Conservation and Revenue Offset. The below section describes the methodology of developing each rate component.

6.1.1 Water Allocation and Sales in FY 2011

It is important to understand the difference between water allocation and water sales when developing a water budget rate structure. Water allocation, is the summation of all the block widths allotted to each individual customer. This allocation needs to meet the amount of

water supply available to the District. In FY 2011, the District projects to purchase 9,400 AF from MWDOC at a blended rate of \$783 per acre-foot (AF). The District expects approximately 300 AF of water lost during transmission and distribution, which produces an effective rate of \$809 per AF and sales of 9,100 AF. Using allocation factors described in Section 5.1 above, RFC has projected water allocation in Tiers 1 and 2, plus estimated water sales for CII to be approximately 9,000 AF. In addition, based on previous experience, RFC estimates that the variance program will increase the overall Tier 1 and Tier 2 water allocations by approximately 5 percent. Thus, the water budgets allocated to Tier 1 and Tier 2 and CII after adjusted for variance program will consume the available MWDOC supply of 9,100 AF.

Table 6-1: Potential (Maximum) Water Allocation

	Single Family	Multi Family	Irrigation	Total (ccf)	Total (AF)
Tier 1	642,115	1,079,458	0	1,721,573	3,952
Tier 2	429,700	28,233	1,255,960	1,713,892	3,935
Water Budget Subtotal	1,071,815	1,107,691	1,255,960	3,435,466	7,887
CII				486,515	1,117
Variance Program				43,560	100
Total				3,965,541	9,104

It is expected that the water sales and the water allocation be different, since not all customers will utilize their water allocation, i.e. they will only use a partial amount of

their Tier 1 and/or Tier 2 allocation. Table 6-2 shows the expected water sales to occur in each of the respective tiers.

Table 6-2: Projected Water Sales in Tiers

Projected Usage (ccf)						
Tiers	Single Family	Multi Family	Irrigation	Total	% Reliable*	Reliable
Tier 1	511,843	867,093	0	1,378,936	N/A	
Tier 2	342,523	22,678	898,020	1,263,221	100%	1,263,221
Tier 3	78,121	134,950	112,419	325,490	100%	325,490
Tier 4	49,253	302,330	158,256	509,839	0%	
Total	981,740	1,327,051	1,168,695	3,477,486		1,588,711

*To be accounted in delivery revenue calculations



6.1.2 Cost of Water Supply

The current water supply of the District from MWDOC is expected to be consumed by the efficient water use in Tier 1 and Tier 2 and CII use. Any excessive usage above the efficient levels will potentially drive the District to seek additional water supply sources to accommodate Tier 3 and Tier 4 demands. One additional supply source is the Recycled Water Program, which is identified in the Recycled Master Plan Study. The water demand in Tier 3 po-

tentially will be offset by the most efficient conversion¹⁶ of the current potable water users to recycled water, thus the Tier 3 demand will be responsible for the efficient Recycled Water Program cost of \$1,653¹⁷ per AF. If all customers in the District consume Tier 4 water, the District ultimately will have to employ the full Recycled Water Program Cost or to seek other more expensive water supply sources. Tier 4 demand will incur at the full Recycled Water Program Cost of \$2,479¹⁸ per AF.

Table 6-3: Cost of Water Supply

Water Costs Include water loss of 3%			
Tiers	Descriptions	Cost (\$/AF)	Water Cost (\$/ccf)
Tier 1	MWDOC Blended	\$ 809	\$ 1.86
Tier 2	MWDOC Blended	\$ 809	\$ 1.86
Tier 3	Efficient Recycled Water Program Cost	\$ 1,653	\$ 3.80
Tier 4	Full Recycled Water Program Cost	\$ 2,479	\$ 5.70
Uniform (for CII)	MWDOC Blended	\$ 809	\$ 1.86

6.1.3 Delivery Charge

The delivery charge in FY 2010 is a uniform rate of \$0.17 per ccf to recover the remaining operations and maintenance ("O&M") expenses, which is mainly fixed costs, for the District to deliver the water from MWDOC to its customers. The revenue requirements for the delivery charge remain unchanged from last year. Thus, CII customers, who retain the current rate structure, will continue to be charged \$0.17 per ccf for delivery.

The District's philosophy is to provide water used for health, safety and sanitary purposes at an affordable rate. Thus, although the District's operating revenue requirements are projected to increase in FY 2010-2011, the District decided to fund the increase using cash reserves in order to keep the service charge and delivery revenue requirements unchanged. In addition, water sales in Tier 4 are anticipated to decline over time as customers im-

prove their water use efficiency. Thus, the total delivery revenue requirement (\$525,749) is assessed in Tiers 2 and 3 usages only (1,588,711 ccf) at \$0.34 per ccf.

6.1.4 Conservation Program

The conservation charge will be collected to fund the conservation program to help inefficient users achieve higher water use efficiency. The District intends to fund \$200,000 for the conservation program. Water demand of 325,490 ccf in Tier 3 and 509,839 ccf in Tier 4 that exceeds efficient use will be subject to the conservation charge of \$0.24 per ccf.

6.1.5 Revenue Offset

To ensure water is affordable for sanitary or essential usage, the District decided to use a portion (75 percent) of its Other Income from Site Leases to offset the revenue requirements for Tier 1. In FY 2011, the Site Lease is

¹⁶ It is more cost efficient to convert the potable water users who are closer the Water Recycling Plant.

¹⁷ Cost is escalated from the cost estimated in the Recycled Water Master Plan in 1994 to 2010 dollars using annual 4 percent inflation (based on construction cost index).

¹⁸ Cost is escalated from the cost estimated in the Recycled Water Master Plan in 1994 to 2010 dollars using annual 4 percent inflation (based on construction cost index).



projected to generate income of \$152,770. 75 percent of that (\$114,578) is used to offset 1,721,573 ccf projected to be used in Tier 1. The revenue offset of \$0.06 per ccf is applied against the Tier 1 Water Supply Cost.

6.1.6 Commodity Rates

The tiered commodity rates are summarized below for SFR, MFR and IRR customers. The tiered rate will send out a strong conservation signal to inefficient customers and meet the legal requirements of Proposition 218. CII rates will increase to \$2.03 per ccf to reflect the higher water supply cost while retaining the current delivery charges.

Table 6-4: Commodity Rates (\$/ccf)

Tiers	Current Rates	Proposed Rates				
		Water Supply	Delivery	Conservation	Offset *	Total
Tier 1		\$1.86			(\$0.06)	\$1.80
Tier 2	\$1.89	\$1.86	\$0.34			\$2.20
Tier 3	\$1.89	\$3.80	\$0.34	\$0.24		\$4.38
Tier 4	\$1.89	\$5.70		\$0.24		\$5.94
Uniform Rate	\$1.89	\$1.86	\$0.17			\$2.03

* Offset using Income from Site Lease based on District's policy

6.2 Monthly Water / Sewer Service Charges

The District's financial plan indicates that in FY 2011, there is no overall revenue adjustment for the District's operations including monthly water and sewer service charges and water delivery charges.

6.3 Capital R&R Charges

The Water Capital R&R Charge is a flat charge based on meter size as shown in the table below. The flat charges

for each meter size are calculated based on the hydraulic capacity of each meter and an analysis of actual consumption for each meter size. The residential sewer Capital R&R Charge is based on dwelling units in a manner similar to the current assessment of the Sewer O&M Charge. Non-residential classes including the Commercial and Public Authority classes are billed monthly for the Sewer O&M Charge based on wastewater flow. Refer to "**FY 2010/11 Budget Capital R&R Charge Engineering Report**" prepared by the District's Engineering Department for rate setting methodology attached in the Appendix III. RFC reviewed the Report and found the rate setting methodology consistent with industry practice.

Table 6-5: Monthly Capital R&R Charges, effective July 1st, 2010

Meter Size	Capital R&R Charges	
	Current	Proposed
5/8-inch	\$2.21	\$3.31
3/4-inch	\$2.21	\$3.31
1-inch	\$3.70	\$5.54
1 1/2-inch	\$8.99	\$13.46
2-inch	\$22.56	\$33.77

Table 6-6: Monthly Sewer Capital R&R Charges

Residential Class	Monthly Sewer Capital Replacement & Refurbishment Charge (\$/EDU)
Single Family Residential Condominiums Trailer Park Unrestricted	\$4.55
Laguna Woods Village Trailer Park Restricted Multi-Family Restricted	\$3.61
Multi Family Unrestricted	\$4.29

Meter Size	Commercial	Public Authority
5/8"	\$6.42	-
3/4"	\$7.34	-
1"	\$12.38	\$4.55
1 1/2"	\$25.60	\$20.48
2"	\$68.77	\$35.20

7. CUSTOMER IMPACTS & RATE SURVEY

7.1 Customer Impacts

Before implementing any rate structure recommendations, it is important to understand how the proposed rate structure would impact water customers. In the figures below, customer impacts are presented for each customer class, SFR, MFR and IRR. The customer impacts are driven by the three main changes:

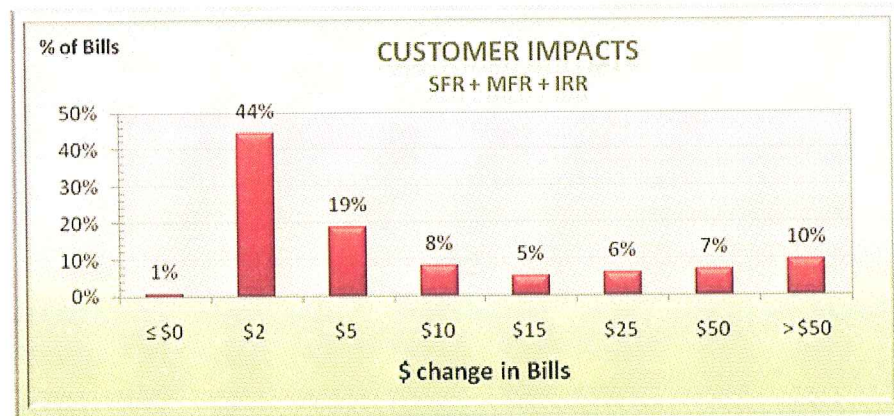
- > The change from the uniform rate to water budget tiered rate;
- > The increase in water supply cost from MWDOC; and
- > The increase in capital R&R.

The rate ramification chart is a powerful tool to assist the Board to make informed decisions. The chart summarizes the percentage of customers who will be impacted upon the implementation of the new rates. The usage ramification chart is a tool that shows the actual impacts in customer bills based on their usage behavior.

7.1.1 All Water Budget Customers

Figure 7-1 below shows that the proposed rates will cause 45 percent of all the customer bills to increase \$2 or less and 19 percent of the bills to increase by \$2 to \$5. More than 70 percent of the bills will experience an increase of \$10 or less in the monthly bills. Approximately 10 percent of all the water budget bills will have more than a \$50 increase.

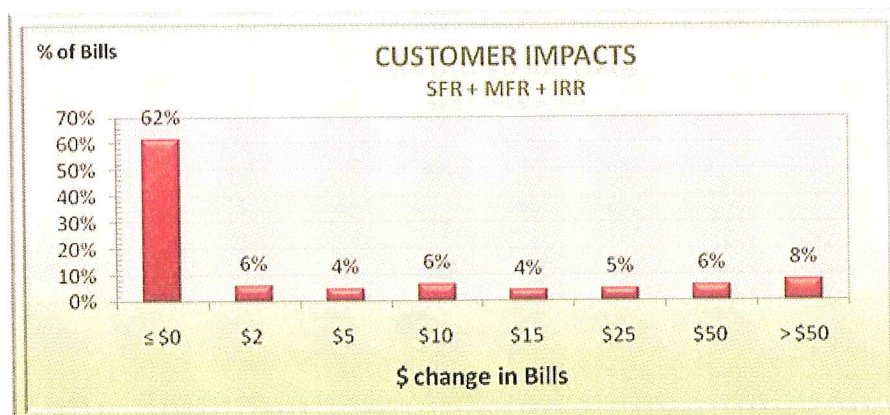
Figure 7-1: Rate Ramifications for All Water Budget Customers



Because the new water rates have increases in multiple components beside the transition of uniform rate to water budget rates, the actual impacts of the water budget tiered rate is masked by the water cost and capital R&R increases. To observe the benefits of the water budget tiered rate structure, the effects of those two increases should be removed on the rate ramification chart. Figure 7-2 below compares the proposed water budget tiered

rate bills with the uniform rates which will take effect in FY 2011 (same as CII rate) assuming that the capital R&R charge is unchanged. According to the Figure 7-2 below, 62 percent of the bills will see a reduction or no change and approximately 16 percent will experience a \$10 or less increase in the monthly bills. Only 8 percent of the bills will experience significant impacts of more than \$50.

Figure 7-2: Rate Ramifications comparing Water Budget Tiered Rate with Uniform Rates collecting the same revenues



7.1.2 Single Family

As shown in Figure 7-3, approximately 45 percent of SFR bills will see a change of \$2 or less in their new bills compared to the current bills assuming their usage behavior unchanged. Another 23 percent of the bills will experience an increase of \$2 to \$5 in the monthly bills. More than 75 percent of the SFR bills will experience mi-

nor monthly bill impacts of \$10 or less. Approximately 4 percent of the bills will see more than \$50 change in their bills. This is consistent with the usage distribution presented in Section 5 above. The customers, who stay within their water budget, will see much smaller impacts than the excessive users.

Figure 7-3: Single Family Rate Ramifications

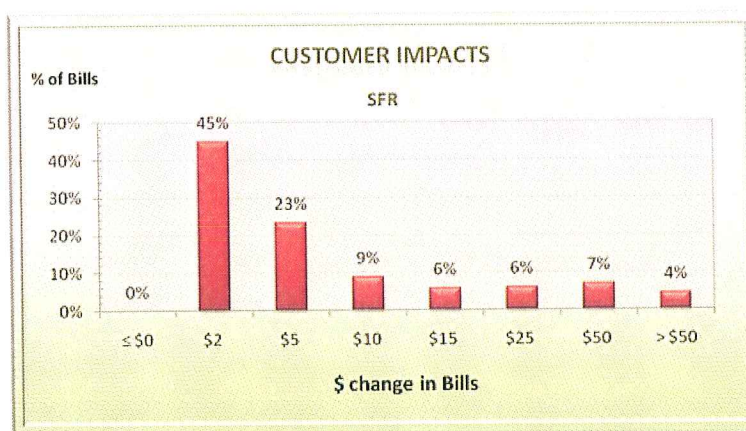
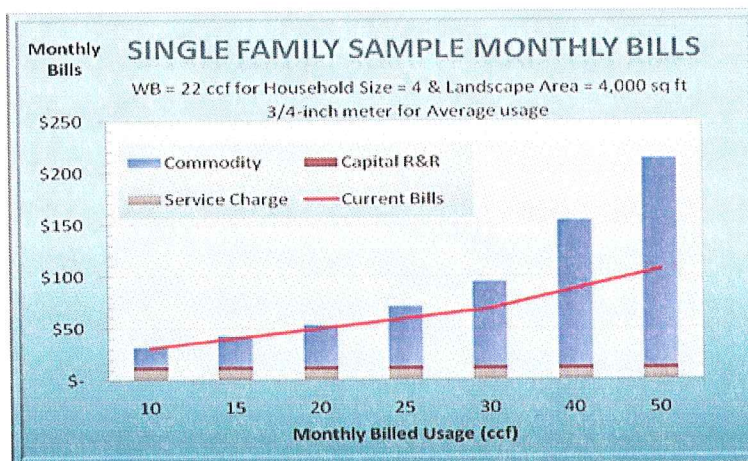


Figure 7-4 shows sample monthly bills of a typical single family customer with 3/4 inch meter on average month at different usage levels from 10 to 50 ccf. The allocated water budget is 22 ccf for household of 4 persons and landscape area of 4,000 sq ft. The red line represents the bills

under current rates. For usage less than the water budget (less than 22 ccf), the difference between the current bills and proposed bills is barely noticeable. However, as the usage increases, the impacts become greater to discourage inefficient and excessive use.

Figure 7-4: Single Family Usage Ramifications

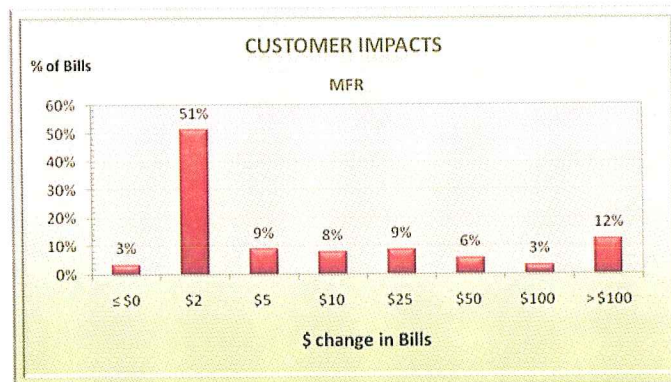


7.1.3 Multi Family

Approximately 3 percent of the MFR will see their bills remain the same or slightly reduced and 51 percent of MFR bills will see a change of \$2 or less in their new bills compared to the current bills assuming their usage behavior remains unchanged. Another 9 percent of the bills will experience an increase of \$2 to \$5 in the

monthly bills. More than 70 percent of the MFR bills will experience minor monthly bill impacts of \$10 or less. Approximately 12 percent of the bills will see more than \$100 change in their bills. The customers, who stay within their water budget, will see much smaller impacts than the excessive users.

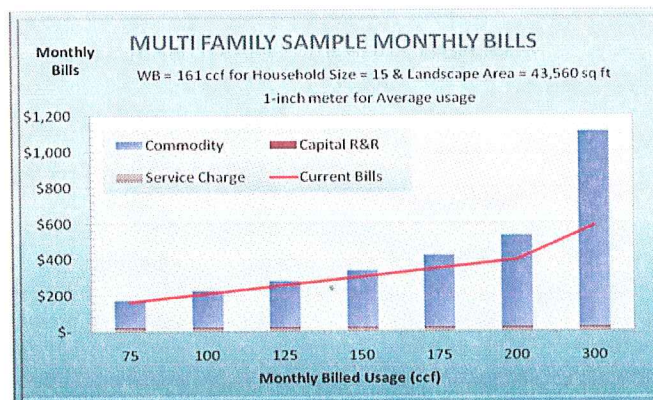
Figure 7-5: Multi Family Rate Ramifications



Sample monthly bills for a typical MFR customer with a 1-inch meter at different usage levels from 75 to 300 ccf are shown in Figure 7-6. The allocated water budget is 161 ccf for 5 dwelling units with household size of 3 persons per unit and landscape area of 43,560 sq ft (1 acre). The red line represents the bills under current rates. For usage less than the water budget (less than 161 ccf), the difference between the current bills and proposed bills is

small. However, as the usage increases, the impacts become greater to discourage inefficient and excessive use. At 300 ccf, approximately 186% of total water budget, the monthly bills will increase from less than \$600 to more than \$1,100. This will send a strong pricing signal and provide incentives for that customer to improve water use efficiency on the property.

Figure 7-6: Multi Family Usage Ramifications

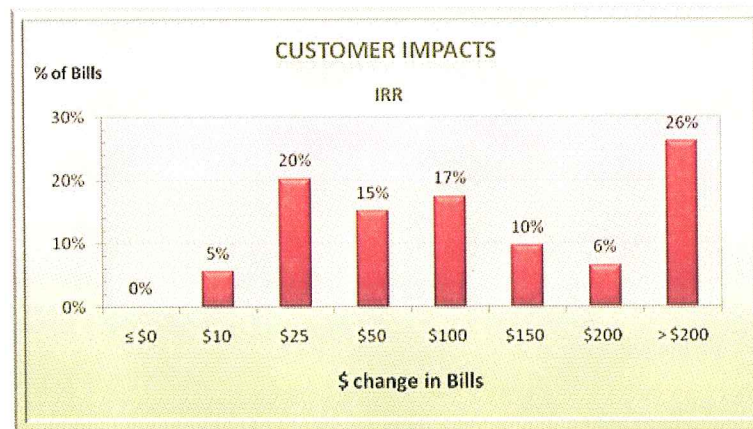


7.1.4 Irrigation

Approximately 5 percent of IRR bills will see a change of \$10 or less in their new bills compared to the current bills assuming their usage behavior remains unchanged. Approximately 26 percent of the bills will see a signifi-

cant increase of more than \$200 in their bills¹⁹. The customers who stay within their water budget will see much smaller impacts than the excessive users. The proposed rates will send strong signals and incentives to irrigation customers to improve their irrigation efficiency.

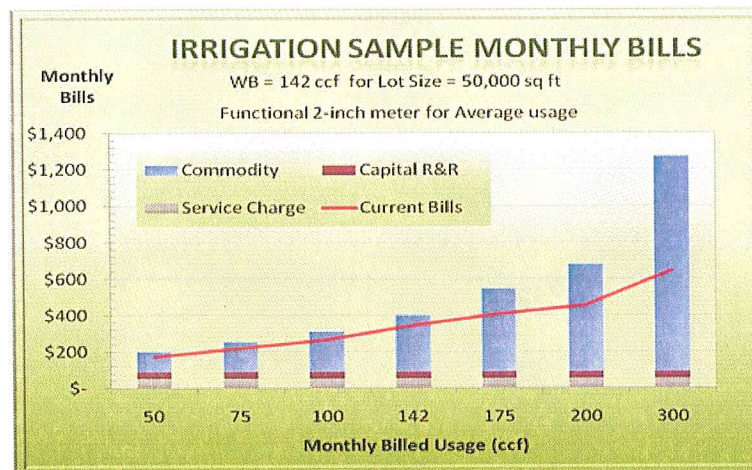
Figure 7-7: Irrigation Customer Impacts



Similar to residential customers, if the consumption is within the allotted water budget, the bill impacts are small, as shown in Figure 7-8 below. The gaps between

the current bills and proposed bills increase with increasing water consumption above the efficient level of 142 ccf for a lot size of 50,000 sq ft.

Figure 7-8: Irrigation Usage Ramifications



¹⁹ Irrigation bills are generally greater than \$400 due to high consumption rate and larger meter size.



7.2 Rate Survey

Comparing water rates with other neighboring communities can provide insights into a utility's water services pricing policies. However, care should be taken in drawing conclusions from such a comparison, as higher rates may not necessarily mean the utilities are operated and managed poorly. Many factors affect the level of costs and pricing structure employed to recover those costs. Some of the most prevalent factors include source of wa-

ter supply, demand, age of system, level of grant funding, level of property tax revenues and rate setting methodology. Presented below is the residential water budget rate comparison of the District's proposed commodity rates with Irvine Ranch Water District for its Los Alisos service area and San Juan Capistrano Water District. For reference, Appendix I summarizes different water budget rate structures utilized by other agencies in Southern California.

Table 7-1: Residential Water Budget Rate Survey

Commodity Rates (\$ / ccf)						
Tiers	ETWD Residential		Irvine Ranch Water District Los Alisos Residential		San Juan Capistrano Residential < 7,000 sq ft lot Total	
	Proposed	7/1/2010	Effective	7/28/2009	Effective	2/1/2010
Tier 1	Indoor WB	\$ 1.80	0-40% WB	\$ 1.40	6 ccf	\$ 2.47
Tier 2	Outdoor WB	\$ 2.20	41-100% WB	\$ 1.78	3 ccf + Outdoor	\$ 3.29
Tier 3	30%(IWB+OWB)	\$ 4.38	101-150% WB	\$ 2.75	up to 200% WB	\$ 4.94
Tier 4	above Tier 3	\$ 5.94	150-200% WB	\$ 4.65	over 200% WB	\$ 9.05
Tier 5			201% WB +	\$ 9.30	* Net irrigable Area = 3,636 sq ft	



8. PROPOSED IMPLEMENTATION STRATEGY

8.1 Implementation Schedule

8.1.1 Phase-In Tier 3 and Tier 4 Rates

One of the District's pricing objectives is to minimize customer impacts. RFC proposes that the Tier 3 and Tier 4 rates are implemented in three phases, to smooth out the transition for customers from uniform rate to

water budget tiered rates. Effective July 1st, 2010, Tier 3 and Tier 4 rates are set at Tier 2 rate at \$2.20 per ccf. On November 1st, 2010, the Tier 3 will be increased to \$3.29 per ccf and Tier 4 will be \$4.07. Starting January 1st, 2011, the full rates for all tiers will be effective as shown in Table 8-1 below.

Table 8-1: Commodity Rates Implementation Schedule

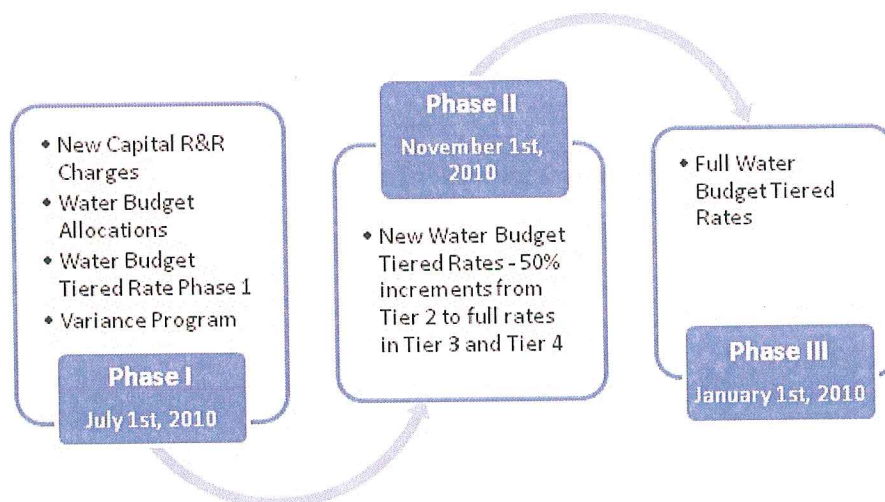
Tiers	Phase-In Proposed Rates		
	Effective July 1st	Effective Nov 1st	Effective Jan 1st
Tier 1	\$1.80	\$1.80	\$1.80
Tier 2	\$2.20	\$2.20	\$2.20
Tier 3	\$2.20	\$3.29	\$4.38
Tier 4	\$2.20	\$4.07	\$5.94
Uniform Rate for CII	\$2.03	\$2.03	\$2.03

CII: Commercial / Industrial / Institutional (Public Authority)

The phase-in Tier 3 and Tier 4 rates smooth out the transition from uniform to water budget tiered rates as the impacts are less severe in the beginning. The phase-in will enable the customers to adapt and modify their consumption behavior to the new rate structure without being heavily penalized, and to apply for the variance program. The phase-in strategy will also smooth out the

customer service burden to process variance requests and/or answering customers' phone calls, as not all customers will see the significant rate impacts in the first few months of the implementation.

8.1.2 Implementation Timeline





8.2 Variance Program

The variance program will allow customers to request changes to their water budget based on household size, landscape area, or other extenuating circumstances. This process will provide truly individualized water budgets. The variance process (refer to Appendix II for the variance form) will be initiated along with the water budget rate implementation on July 1st, 2010.

8.2.1 Adjustments

Adjustments are corrections to the default values to match the actual customer characteristics. Adjustments can be made to only two variables: household size

and landscape area. Customers may apply for adjustments by submitting the variance form to the District (described in Appendix II). The following table summarizes the acceptable adjustments and associated requirements.

The sum of all indoor variances approved by the District for a given customer will be applied to the indoor water budget formula as indoor variance (V_{indoor}) (see Section 5.1.1 above). The sum of all outdoor variances approved by the District for a given customer will be applied to the outdoor water budget formula as outdoor variance (V_{outdoor}) (see Section 5.1.2 above).

Table 8-2: Summary of Acceptable Adjustments and Associated Requirements

Effective July 1st	Range	Requirements	Notes
Household Size	4 - 6 persons	Signed Affidavit	
	> 6 persons	Documents	DMV documents, birth certificates, etc ...
Landscape Area	Up to 10% adjustment	Signed Affidavit	
	> 10% adjustment	Documentation and potential site visit	Blueprints, Orange County Assessors' records

8.2.2 Variances

Variances are additions to the standard water budget allocations to address certain acceptable extenuating circumstances that cause increases in the customer's water needs. Variances can be requested by submitting the variance form to the District (see Appendix II), and variances are subject to the District's approval upon receipt

of the required documentation. The following table summarizes the acceptable variances and associated requirements.

Note that indoor variances will not be subject to the indoor drought factor (DF_{indoor}) while outdoor variances will be subject to the outdoor drought factor (DF_{outdoor}).

Table 8-3: Summary of Acceptable Variances & Associated Requirements

Variances	Indoor / Outdoor	Requirements	Notes
Medical Needs or Elderly / Child Care	Indoor	Documentations (Doctor notes, Licenses)	Temporary - need expiration date
Pool Filling	Outdoor	Affidavit	Once every 2 years
Re-establishing landscape	Outdoor	Affidavit, documentations	Once every 2 years
Large Animal (≥ 100 lbs)	Outdoor	Vet notes	Permanent
Right of Ways	Outdoor	Documentation	Permanent



APPENDICES

A. Appendix I - Water Budget Structure Survey

Descriptions	Irvine Ranch Water District	City of San Juan Capistrano	Eastern Municipal Water District	Rancho California Water District	Western Municipal Water District	Elsinore Valley MWD
Customer Classes	SFR, MFR, CII, Ag	SFR, MFR, IRR, Ag	SFR, MFR, IRR	SFR, MFR, IRR	SFR, IRR, MFR, CII	SFR
Indoor	SFR, MFR	Residential = 9 ccf, Residential High Density = 12 ccf Master Meter = 6 ccf	SFR, MFR	SFR, MFR	SFR, MFR	SFR
Household Size	Residential Detach = 4 Residential Attach = 3 Apartments = 2		SFR = 3 MFR = 2	SFR = 4 MFR = 3	SFR = 4 MFR = 3	4
GPCD	55		60	60	60	60
Outdoor	SFR, MFR, CII, IRR, Ag	SFR, MFR, IRR	SFR, MFR, IRR	SFR, MFR, IRR	SFR, MFR, IRR	SFR
ETAF (% of ET₀)	1.40*Kc Kc = crop coefficient	100%	70%	85% IRR - Tier 1 - 70% of ET ₀ Tier 2 - additional 15% ET ₀	Residential - 100% Irrigation - 80%	60%
Landscape Data	Resi Detach = 1300sq ft Resi Attach = 435 sq ft Irrigation = site specific	a) Lot size < 7000 sq ft => Irrig Area = 3636 sq ft b) If > 7000 sq ft, parcel area - footprint for building & hardscape	parcel area - footprint for building & hardscape Landscape Area Caps by Meter Size	parcel area - footprint of the building Landscape Area Caps applied by Lot Size	~ 30% of parcel areas	60% of parcel areas
ET₀	real data	real data	real monthly data	real monthly data	real monthly data	Historical ET
Rate Structure	Tier 1 - Low Volume - 0-40% WB Tier 2 - Base - 41-100% WB Tier 3 - Inefficient (100-150% WB) Tier 4 - Excessive (150-200% WB) Tier 5 - Unsustainable (above 200% WB)	Tier 1 - 100% WB Tier 2 - 100-200% WB Tier 3 - Above 200% WB	Tier 1 - Indoor Tier 2 - Outdoor Tier 3 - Inefficient (100-150%WB) Tier 4 - Excessive	Tier 1 - Essential (Indoor) Tier 2 - Efficient (Outdoor) Tier 3 - Inefficient (100-150%WB) Tier 4 - Wasteful	Tier 1 - Indoor Tier 2 - Outdoor Tier 3 - Inefficient (100-150% WB) Tier 4 - Excessive (150-200% WB) Tier 5 - Unsustainable	Tier 1 - Indoor Tier 2 - Outdoor Tier 3 - Inefficient (width = 1 Outdoor WB) Tier 4 - Excessive (width = 2 outdoor WB) Tier 5 - Wasteful



B. Appendix II - Variance Program Form

This sample form is to request adjustments to default values assigned for your parcel and to request variances to increase your water budget allocation due to extenuating circumstances. If you believe you need an increased allocation based on the criteria listed below, you must complete and return this form. The water budget rate structure is designed to serve as a tool to help you identify problems such as leaks or over-watering. Variances may be approved for any of the following reasons and are subject to periodic review by El Toro Water District. One completed form per meter. If you have multiple meters in one account, please refer to your bill for the meter number for the meter requesting adjustments and/or variances.

Customer Information	
Account number:	Meter Number:
Service Address:	
Name of owner(s):	
Email address: _____	
Phone number: _____	
Adjustments	
<input type="checkbox"/> Household Size (Indoor) (documentations such as copies of DMV records, birth records, school records, etc. are required for households with more than 6 residents) Total number of persons residing at the service address: _____	
<input type="checkbox"/> Landscape Area (Outdoor) (documentations such as copies of blueprints, Orange County Assessors' records, etc. is required for request of more than 10% increase with potential site visit for verifications) Current Irrigable Landscape Area: _____ sq ft Adjusted Irrigable Landscape Area : _____ sq ft Purpose of Landscape: (circle one) Edible / Ornamental / Recreational	
Variances	
<input type="checkbox"/> Medical Needs (Indoor) (Doctor's notes are required. The notes should specify the info below.) Amount of additional water needed per day: _____ gallons	
<input type="checkbox"/> Elderly Care / Child Care (Indoor) (Copies of License are required) Total number of persons : _____	
<input type="checkbox"/> Large Animals (Outdoor) (for animals ≥ 100 lbs, Vet notes are required. The notes should specify the amount of water needed for each animal.) Total number of large animals : _____ Amount of water needed per large animal per day : _____ gallons	
<input type="checkbox"/> Pools (Outdoor) (once every 2 years) – fill in one of the two lines below Pool volume : _____ gallons / cubic feet (circle the correct unit) Pool dimensions: _____ ft (length) x _____ ft (width) x _____ ft (average depth)	



☐ **Re-establishing Landscape** (Outdoor) (once every 2 years) – fill in one of the two lines below
(construction documentations, blue prints may be requested for verification)

New irrigable landscape : _____ sq ft

Date planted: _____ **Edible / Ornamental (circle one)**

☐ **Others**

There may be instances where an increased allocation on a permanent or temporary basis may be appropriate. If you believe that is the case, please provide the details in the lines below and attach any documentation you may have. Our Customer Service Department will contact you regarding your request within 30 business days. Please note that additional documentation may be required.

In most cases, if approved, variances will be applied starting with your next bill.

I have completed this form and affirm that I am the above account holder and the information contained herein, including attachments, is complete and accurate. I further understand that all variances are subject to change and I may be liable for back charges for providing false information.

Please mail or fax the completed and signed form along with required documentation (if any) to:

El Toro Water District

24251 Los Alisos Blvd.

Lake Forest, CA 92630

Attn: Customer Service – Variance Form

Fax: 949-837-7092

Signature

Date

District Use Only	
Received Date	Processing Date
<input type="checkbox"/> Approved <input type="checkbox"/> Declined	
Other Note(s):	Reason(s) for Decline:



C. Appendix III - FY 2010/11 Budget Capital R&R Charge Engineering Report

FY 2010/11 BUDGET

CAPITAL R & R CHARGE

ENGINEERING REPORT



April 2010

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INTRODUCTION

As the District's facilities age, the District continues to make a concerted effort to replace and refurbish its infrastructure to protect its investment, meet regulatory guidelines and ensure an adequate level of service to its users. The Capital Facilities Replacement and Refurbishment Program (CFRRP) is designed to protect the District's investment in its infrastructure. In July, 2005 the District established the following charges intended to fund the District's CFRRP.

- Capital R&R Charge – Water System

This line item is a flat monthly charge, based on meter size, on each bill to fund the water portion of the capital program. The derivation of the monthly water Capital R&R Charge is described below.

- Capital R&R Charge– Sewer System

This line item is a flat monthly charge, based on equivalent dwelling units, on each bill to fund the sewer portion of the capital program. The derivation of the monthly sewer Capital R&R Charge is described below.

In an effort to minimize the financial impact to customers the collection of capital costs was phased over time in conjunction with the prudent use of reserves to balance revenues and expenses. The Capital Charges in 2005 generated revenue of \$1,325,000. As part of the 2007/08 budget the District increased those charges to generate an additional \$675,000 of annual revenue. As part of the 2010/11 budget the District will increase these charges to generate a total of \$2,500,000 to fund the CFRRP. This report provides a discussion of the basis for the equitable allocation of these charges to the District's different classes of customers and different meter sizes.

CAPITAL R&R CHARGES

As described above, the District's on-going water and sewer CFRRP is funded by the water and sewer Capital R&R Charge line items on the bill. The existing capital charges generate approximately \$2,000,000 in annual revenue. The proposed rate change will increase the capital charges to generate an additional \$500,000 in revenue bringing the total annual revenue from the capital charges to \$2,500,000. Staff evaluated the water and sewer components for the proposed 2010/11 five year CFRRP projection and used the proportionate water and sewer capital costs to allocate the \$2,500,000 total capital charges to water and sewer as follows:

	Five Year Total	Allocation
Water Capital	\$6,188,671	\$1,031,000
Sewer Capital	\$8,817,837	\$1,469,000
Total Capital	\$15,006,508	\$2,500,000

- Water Capital R&R Charge**

The water Capital R&R Charge allocation is based on meter sizes. The Cost of Service analysis previously used to define the fixed meter fee (Water O&M Charge) assigned equivalent meter factors based on hydraulic capacity and an analysis of actual consumption for each meter size. The previously assigned equivalent meter factors are described in the following table. The total number of equivalent meters is calculated by multiplying the total number of meters for each meter size by the appropriate equivalent meter factor:

Meter Size	Equivalent Meter Factors	Meter Quantity	Total Equivalent Meters
5/8	1	2,389	2,389
3/4	1	4,882	4,882
1	1.67	443	740
1 1/2	4.06	717	2,911
2	10.19	1,472	15,000
Total		9,903	25,922

The annual capital charge per equivalent meter is calculated by allocating the total cost for the water portion of the CFRRP to each equivalent meter as follows:

$$\$1,031,000 / 25,922 = \$39.77 \text{ per equivalent meter}$$

The water Capital R&R Charge is determined for each meter size proportionately based on the number of equivalent meters. The annual Capital R&R Charge for any size meter is derived by multiplying the annual charge per equivalent meter by the equivalent meter factor for that meter size. For example, the annual charge for a 1" meter size was calculated per the following formula:

$$\text{Equivalent Meter Factor for 1" Meter} \times \$39.77 = \text{1" Meter Annual Capital R\&R Charge}$$

$$1.67 \times \$39.77 = \$66.42$$

The derivation of the charge for each meter size and the total annual and monthly charges are defined in the following table:

Meter Size	Equivalent Meters Factor	Cost per Equivalent Meter	Annual Capital R&R Charge Per Meter	Monthly Capital R&R Charge Per Meter	Number of Meters	Total Annual Capital R&R Charge
5/8	1	\$39.77	\$39.77	\$3.31	2,389	\$94,891
3/4	1	\$39.77	\$39.77	\$3.31	4,882	\$193,913
1	1.67	\$39.77	\$66.42	\$5.54	443	\$29,397
1 1/2	4.06	\$39.77	\$161.47	\$13.46	717	\$115,810
2	10.19	\$39.77	\$405.26	\$33.77	1,472	\$596,513
Total					9,903	\$1,030,524

- **Sewer Capital R&R Charge**

The variety of applications, sewer return factors, and wastewater strengths makes it unreasonable to develop Capital R&R Charges based solely on meter sizes and the equivalent meter method. For purposes of equitable allocation amongst the various sewer users a different concept was required.

The sewer Capital R&R Charge is based on dwelling units in a manner similar to the current assessment of the Sewer O&M Charge for much of the residential community. For this purpose, users are divided into residential and non-residential classes. Dwelling unit data was initially tabulated for each of the residential customer classes.

A Single Family Residence (SFR) is considered a fairly homogenous class in terms of flow and strength of wastewater discharge. An SFR is considered as one equivalent dwelling unit (EDU). There are 5,678 single family residences in the ETWD service area which represent 5,678 EDUs. The wastewater loadings of residential customers other than Single Family Residences are compared to a single family residence and defined in terms of EDUs using SFRs as the baseline. Sewer charges are used to define EDUs by comparing the sewer service charges for other users to those of a single family residence.

Laguna Woods Village, the restricted Trailer Park class and the restricted and the unrestricted Multi Family classes have a lower residential density than the Single Family class. The Sewer O&M Charge is lower for these classes than for the SFR class in deference to the lower density and the accompanying lower rate of sewer discharge. For purposes of calculating the sewer Capital R&R Charge the dwelling units (DUs) for these developments are proportionately reduced based on the ratio of the applicable Sewer O&M Charge flat rate to the current SFR rate of \$17.49 per month. The revised EDU counts in Laguna Woods Village, the Multi-Family and the Restricted Trailer Park classes are calculated as follows:

Condominiums	1020 DUs x \$17.49 / \$17.49 = 1020 EDUs
Laguna Woods Village	12,736 DUs x \$13.87 / \$17.49 = 10,100 EDUs
Trailer Parks Restricted	584 DUs x \$13.87 / \$17.49 = 463 EDUs
Trailer Parks Unrestricted	390 DUs x \$17.49 / \$17.49 = 390 EDUs
Multi-Family Restricted	1,584 DUs x \$13.87 / \$17.49 = 1,256 EDUs
Multi-Family Unrestricted	2,543 DUs x \$16.49 / \$17.49 = 2,398 EDUs

Non-residential classes including the Commercial and Public Authority classes are billed monthly for the Sewer O&M Charge based on wastewater flow. In order to fairly allocate the Sewer Capital R&R cost to these classes, an analysis was conducted of the total sewer O&M Charge billing for each meter size by class. The sewer O&M charge billing captures such variables as type of business, wastewater strength and return to sewer factors based on potential irrigation components of combined meters. A ratio of the total sewer O&M charge billing for each meter size relative to the monthly residential sewer O&M Charge flat rate of \$17.49 was calculated and used to assign EDUs for each meter size within the Commercial Class. An example of the formula to derive the EDUs for a 5/8" meter size demonstrates the method:

Annual Sewer Billing for 5/8" Meters / 12 / Number of Accounts / Residential Flat Rate = Ratio

$$\$5,027 / 12 / 17 / \$17.49 = 1.41$$

The total number of EDUs for each meter size is then derived by multiplying the calculated ratio for that meter size by the corresponding number of accounts for that meter size. The following table describes the development of EDU data for the Commercial Class:

Meter Size	Annual Sewer Billing	Total Monthly Sewer Billing	Ratio to Residential Flat Rate	Number of Accounts	Equivalent Dwelling Units
5/8	\$5,027	\$419	1.41	17	24
3/4	\$26,984	\$2,249	1.61	80	129
1	\$65,718	\$5,476	2.72	115	313
1 1/2	\$211,402	\$17,617	5.63	179	1,007
2	\$834,213	\$69,518	15.11	263	3,975
Total	\$1,143,345	\$95,279		654	5,448

A similar analysis was conducted for the Public Authority Class. The following table provides the calculated EDUs for this class:

o **Public Authority**

Meter Size	Annual Sewer Billing	Total Monthly Sewer Billing	Ratio to Residential Flat Rate	Number of Accounts	Equivalent Dwelling Units
1	\$205	\$17	0.97	1	1
1 1/2	\$1,986	\$165	4.73	2	9
2	\$30,804	\$2,567	7.72	19	147
Total	\$32,994	\$2,750		22	157

After developing the EDU data for the non residential classes, total EDU data was tabulated for the entire sewer customer base as shown below.

The monthly Capital R&R Charge per class is calculated proportionately based on the number of dwelling units per class in order to generate the total desired capital charge of \$1,750,000. The calculation is demonstrated as follows for the Single Family Residential customer class:

$$\text{EDUs for Class} / \text{Total EDUs} \times \text{Total Capital Cost} = \text{Class Capital R\&R Charge}$$

$$5,678 / 26,910 \times \$1,469,000 = \$309,958$$

The EDU data and the assessment of the total capital R&R cost per class are reflected in the table below:

	DUs	EDUs	Monthly Capital R&R Charge	Total Annual Capital R&R Charge
Single Family Residential	5,678	5,678	\$25,830	\$309,958
Commercial	5,448	5,448	\$24,784	\$297,403
Condominium	1,020	1,020	\$4,640	\$55,681
Public Authority	157	157	\$714	\$8,571
Laguna Woods Village	12,736	10,100	\$45,946	\$551,353
Trailer Parks Restricted	584	463	\$2,106	\$25,275
Trailer Parks Unrestricted	390	390	\$1,774	\$21,290
Multi Family Restricted	1,584	1,256	\$5,714	\$68,564
Multi Family Unrestricted	2,543	2,398	\$10,909	\$130,905
Total	30,140	26,910	\$122,417	\$1,469,000

The annual cost per equivalent dwelling unit, irrespective of class, is derived by dividing the total annual charge (\$1,469,000) by the total number of EDUs (26,910) resulting in an annual cost of \$54.59 per sewer EDU or a monthly cost of \$4.55 per EDU.

The Sewer Capital R&R Charge for each residential customer is calculated by dividing the Total Capital R&R Charge for that class by the total number of dwelling units producing the following residential Sewer Capital R&R Charges:

	DUs	EDUs based on Sewer Flat Rates	Total Annual Capital Charge	Monthly Capital Charge per Dwelling Unit
Single Family Residential	5,678	5,678	\$309,958	\$4.55
Condominium	1,020	1,020	\$55,681	\$4.55
Laguna Woods Village	12,736	10,100	\$551,353	\$3.61
Trailer Parks Restricted	584	463	\$25,275	\$3.61
Trailer Parks Unrestricted	390	390	\$21,290	\$4.55
Multi-Family Restricted	1,584	1,256	\$68,564	\$3.61
Multi-Family Unrestricted	2,543	2,398	\$130,905	\$4.29

The Sewer Capital R&R Charge for non-residential customers is calculated by multiplying the monthly cost per EDU (\$4.55) by the number of EDUs for each meter size and then dividing the product by the number of accounts in that meter size. The following is an example of the formula for the 5/8" commercial meter size:

$$\text{Monthly Cost/EDU} \times \text{EDUs/Meter Size} / \text{Number of Accounts} = \text{Sewer Capital R\&R Charge}$$

$$\$4.55 \times 24 \text{ EDUs} / 17 \text{ Accounts} = \$6.42/\text{month}$$

The monthly Sewer Capital R&R Charge for each non-residential customer class is summarized in the following table:

	Meter Size	Number of Accounts	Equivalent Dwelling Units	Monthly Capital Charge Per Meter
Commercial				
	5/8	17	24	\$6.42
	3/4	80	129	\$7.34
	1	115	313	\$12.38
	1 1/2	179	1,007	\$25.60
	2	263	3,975	\$68.77
Public Authority				
	1	1	1	\$4.55
	1 1/2	2	9	\$20.48
	2	19	147	\$35.20

SUMMARY

To protect its infrastructure investment and to ensure a continuing high level of service to its users the District maintains a significant Capital Facilities Replacement and Refurbishment Program. The water portion of the District's monthly bill includes a line item for collection of revenue to fund the District's Capital Facilities Replacement and Refurbishment Program. The Water Capital R&R Charge will be based on meter size as follows:

Meter Size	Monthly Water Capital Replacement & Refurbishment Charge
5/8	\$3.31
3/4	\$3.31
1	\$5.54
1 1/2	\$13.46
2	\$33.77

The sewer portion of the monthly billing includes a similar line item for sewer service. For Residential customers the sewer Capital R&R Charge is:

Residential Class	Monthly Sewer Capital Replacement & Refurbishment Charge (\$/EDU)
Single Family Residential Condominiums	\$4.55
Trailer Park Unrestricted Laguna Woods Village Trailer Park Restricted Multi-Family Restricted	\$3.61
Multi Family Unrestricted	\$4.29

For Non-Residential customers the sewer Capital R&R Charge is:

Meter Size	Commercial	Public Authority
5/8"	\$6.42	-
3/4"	\$7.34	-
1"	\$12.38	\$4.55
1 1/2"	\$25.60	\$20.48
2"	\$68.77	\$35.20

Appendix D
Ordinance No. 2010-1

EL TORO WATER DISTRICT

WATER CONSERVATION & WATER SUPPLY SHORTAGE ORDINANCE 2010 – 1 (effective January 1, 2011)

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ORDINANCE NO. 2010 - 1

**AN ORDINANCE OF THE BOARD OF DIRECTORS
OF EL TORO WATER DISTRICT ESTABLISHING A
WATER CONSERVATION & WATER SUPPLY SHORTAGE PROGRAM
FOR USERS OF POTABLE WATER PROVIDED BY THE DISTRICT**

Section I. Title

**El Toro Water District Water Conservation & Water Supply Shortage Ordinance
("Ordinance")**

Section II. Findings

1. **A reliable minimum supply of potable water is essential** to the public health, safety and welfare of the people and economy of Southern California.
2. **Southern California is a semi-arid region, largely dependent on imported water** supplies from Northern California and the Colorado River. Population growth, drought, climate change, environmental concerns, government policy changes, restrictions on pumping and other factors in our region, in other parts of the State and in the western U.S. make Southern California highly-susceptible to water supply reliability issues.
3. **Careful water management requires active conservation measures** not only in times of drought but at all times. It is essential to ensure a reliable minimum supply of water to meet current and future water supply needs.
4. **California Constitution Article X, Section 2** declares for the general welfare:
 - a. Water resources be put to beneficial use
 - b. Prevention of water waste and unreasonable water use or methods of water use
 - c. Full exercise of water conservation with a view to reasonable and beneficial water use
5. **California Water Code Section 375** authorizes water suppliers to adopt and enforce a comprehensive water conservation program to reduce water consumption and conserve supplies.

6. **California Water Code Sections 350, et. seq.**, sets forth the determination and notification procedures for water suppliers seeking to declare a water shortage or a water emergency.
7. **California Water Code Section 356** allows for the adoption of regulations and restrictions that include discontinuance of service as an enforcement option where a water shortage emergency condition has been declared.
8. **California Water Code Section 370, et. seq.**, authorizes water suppliers to adopt water allocation programs for water users and allocation-based conservation water conservation pricing.
9. **California Water Code Sections 13550 and 13551** declare a statewide policy that the use of potable domestic water for irrigation purposes when reclaimed (recycled) water is available constitutes a waste or unreasonable use of water within the meaning of the State Constitution.
10. **El Toro Water District** requires that future developments utilize reclaimed (recycled) water wherever economically and technically feasible within the boundaries of the District in order to conserve potable water for the purposes of human consumption and fire protection.
11. **The adoption and enforcement of a Water Conservation & Water Supply Shortage Ordinance is necessary to manage the District's potable water supply** short- and long-term and to minimize and/or avoid the effects of drought and water shortage within the District. Such a program is essential to ensure a reliable and sustainable minimum supply of water for public health, safety and welfare.

Section III. Declaration of Purpose and Intent

1. To minimize or avoid the effect and hardship of potential shortages of **potable water** to the greatest extent possible, this Ordinance establishes a Water Conservation & Water Supply Shortage Program designed to:
 - a. Reduce potable water consumption (demand) through conservation and, if necessary, through water supply shortage allocations to all customer categories. Water shortage allocations will be achieved through the use of a "drought factor" which is a component of the District's Water Budget Based Tiered Conservation Rate Structure.
 - b. Enable effective potable water supply planning
 - c. Assure reasonable and beneficial use of potable water
 - d. Prevent waste of potable water and maximize efficient use in the District
2. **The Ordinance establishes:**
 - a. **Permanent Mandatory Water Conservation Measures** are designed to alter behaviors related to potable water-use efficiency during non-shortage conditions

- b. **Three levels of potential response to escalating water supply shortages** which the El Toro Water District Board may choose to implement during times of declared water shortage or water emergency. The three levels of response consist of expanded water use restrictions and the possible imposition of water supply shortage allocations to all customer categories as a result of worsening drought conditions, emergencies, and/or decreasing supplies.

Section IV. Definitions

1. General

- a. **“The District”** means El Toro Water District.
- b. **“The Board”** means the El Toro Water District Board of Directors.
- c. **“Person”** means any person or persons, corporation, public or private entity, governmental agency or institution, or any other user of water provided by the District.
- d. **“Potable Water”** means water that is suitable for drinking.
- e. **“Recycled Water”** means the reclamation and reuse of non-potable water and/or wastewater for beneficial use, such as irrigation. Also known as “Reclaimed Water.”
- f. **“Water Waste”** refers to uses of water that are limited or prohibited under the Ordinance because they exceed necessary or intended use and could reasonably be prevented, such as runoff from outdoor watering.
- g. **“Billing Unit”** is equal to 100 cubic feet (1 CCF) of water, which is 748 gallons. Water use is measured in units of 100-cubic-feet and multiplied by applicable water usage rates for billing. Also known as a “Unit of Water.”
- h. **“Undue Hardship”** is a unique circumstance in which a requirement of the Ordinance would result in a disproportionate impact on a water user or property upon which water is used compared to the impact on water users generally or similar properties or classes of water use.
- i. **“Safety and Sanitary Hazard”** is one which presents an immediate and imminent threat to human health (injury).
- j. **“Water Budget Based Tiered Conservation Rate Structure”** (“Tiered Conservation Rate Structure”) is a rate structure which provides “water budgets” to each customer based on efficient indoor and outdoor need. Water used in excess of the combined indoor and outdoor budget is billed at a progressively higher rate providing a clear indicator regarding inefficient use of potable water. The increased costs for utilization of water in excess of budgeted amounts provides adequate financial incentive to stay within assigned budgets and to comply with Permanent Mandatory Water Conservation Measures.

- k. “Drought Factor” is a component of the water budget calculation that modifies (reduces) the indoor and/or outdoor budget to further encourage conservation in times of water supply shortage and provides a financial incentive for adhering to budgeted amounts.

2. Irrigation

- a. **“Irrigation Controller”** is the part of an automated irrigation system that instructs the valves to open and close to start or stop the flow of water.
 - 1. **“Sensor-based irrigation controller”** operates based on input from a combination of sensors (rain, solar, soil moisture) installed in or around the landscaped area.
 - 2. **“Weather-based irrigation controller”** operates automatically based on evapo-transpiration rates and historic or real-time weather data.
- b. **“Irrigation System”** refers to a manual or automated watering system consisting of pipes, hoses, spray heads and/or sprinkler devices or valves. Also known as a “Landscape Irrigation System.”
- c. **“Positive Self-Closing Shut-Off Hose Nozzle”** refers to a water-efficient hose nozzle for residential or commercial hoses that users must press or release to start or stop the flow of water. Also known as an “Automatic Shut-Off Nozzle.”
- d. **“Valves”** refer to the part of an irrigation system that opens and closes manually or electronically to start or stop the flow of water.

3. Other

- a. **“Pre-Rinse Kitchen Spray Valves”** refer to highly water-efficient sprayers that commercial kitchens use to rinse dishes in the sink before washing and for other preliminary cleaning purposes.
- b. **“Single-Pass Cooling System”** refers to an air conditioning, refrigeration or other cooling system that removes heat by transferring it to a supply of clean water and dumping the water down the drain – after a single use. This type of cooling system is extremely water-inefficient compared to systems that re-circulate the water.

Section V. Application of Ordinance

- 1. **Ordinance provisions apply to any person or entity using potable water provided by the District.** This includes individuals, persons, corporations, public or private entities, governmental agencies or institutions, or any other users of District water.
- 2. **The provisions of this Ordinance does not apply to the following:**

- a. **Water use which is immediately necessary to protect public health and safety** or for essential government services, such as police, fire and similar services.
 - b. **Recycled water use for irrigation.** Use of recycled water requires a permit that has specific use restrictions, many of which focus on water efficiency. Given such permits and the interest in promoting the use of recycled water as a means to preserve potable, recycled water is exempt from all requirements of this Ordinance.
 - c. **Water used by nurseries and growers** to sustain plants, trees, shrubs, crops, compost or other landscape vegetation material intended for distribution or commercial sale.
3. **This Ordinance is intended solely to further the conservation of potable water.** It is not intended to implement any provision of federal, state or local statutes, ordinances or regulations relating to protection of water quality or control of drainage or runoff. Refer to the local jurisdiction or Regional Water Quality Control Board for information on storm water ordinances or management plans.

Section VI: Permanent Mandatory Water Conservation Measures

The following Permanent Mandatory Water Conservation Measures for potable water are in effect at all times.

1. General Restrictions – Residential, Commercial and Public Customers

a. Limits on Outside Watering Hours

1. **Watering or irrigating is prohibited any day of the week between 10:00 a.m. and 5:00 p.m..**
2. The week includes weekdays and weekends, seven (7) days
3. This applies to lawns, landscaping and all other vegetated areas.
4. The following are **exempt** from this restriction:
 - a. Watering with a hand-held bucket or similar container
 - b. Watering with a hand-held hose equipped with a positive self-closing shut off hose nozzle
 - c. Adjusting or repairing an irrigation system for very short periods of time

b. Limits on Outside Watering Duration

1. **Watering or irrigating with a device or system that is not continuously attended is limited to no more than 15 minutes per day per valve.**

2. This applies to lawns, landscaping and all other vegetated areas.
3. The following irrigation systems are **exempt**:
 - a. Very low-flow drip-type systems where no emitter discharges more than two (2) gallons of water per hour
 - b. Systems equipped with sensor or weather-based controllers.
- c. **No Excessive Water Flow or Runoff:** It is prohibited to water lawns, landscaping and vegetated areas in a manner that causes or allows excessive water flow or runoff onto an adjoining sidewalk, driveway, street, alley, gutter or ditch.
- d. **No Outside Watering when it is Raining:** During rain events, outside watering must be manually terminated or automatically terminated using sensor-based or weather-based irrigation controllers.
- e. **Obligation to Fix Leaks, Breaks or Malfunctions in lines, fixtures or facilities**
 1. Excessive use, loss or escape of water through breaks, leaks or malfunctions in the water user's plumbing or distribution system:
 - a. Is prohibited for any period of time after such water waste should have reasonably been discovered and corrected
 - b. Must be corrected in **no more than five (5) days of District notification**
- f. **No Hosing or Washing Down Hard or Paved Surfaces**
 1. It is prohibited to hose or wash down hard or paved surfaces, such as sidewalks, walkways, driveways, parking areas, tennis courts, patios or alleys.
 2. When it is necessary hose or wash down hard or paved surfaces to alleviate safety or sanitary hazards, the following may be used:
 - a. Hand-held bucket or similar container
 - b. Hand-held hose equipped with a positive self-closing shut off hose nozzle
 - c. Low-volume high-pressure cleaning machine equipped to recycle used water
- g. **No Hosing or Washing Down Vehicles**
 1. It is prohibited to use water to hose or wash down a motorized or non-motorized vehicle, including but not limited to automobiles, trucks, vans, buses, motorcycles, boats or trailers.
 2. The following are **exempt** from this restriction:

- a. Use of a hand-held bucket or similar container
 - b. Use of a hand-held hose equipped with a positive self-closing shut off hose nozzle
 - c. Commercial car washing facility
- h. **Re-Circulating Decorative Water Fountains and Features** All decorative water fountains and water features must re-circulate water -- or users must secure a waiver from the District.

2. Commercial Food-Serving & Lodging Requirements

- a. **Water Served Only Upon Request.** Eating or drinking establishments, including but not limited to restaurants, hotels, cafes, bars or other public places where food or drinks are sold, or served or offered for sale, are prohibited from providing drinking water to any person unless requested.
- b. **Option Not To Have Towels/Linens Laundered.** Hotels, motels and other commercial lodging establishments must provide guests the option of not having their used towels and linens laundered. Lodging establishments must prominently display notice of this option in each room and/or bathroom, using clear and easily understood language.

3. Commercial Kitchen Requirements

- a. **Water-Efficient Pre-Rinse Kitchen Spray Valves.** Food preparation establishments, such as restaurants, cafes and hotels, are prohibited from using non-water efficient kitchen spray valves, as follows:
 - 1. **New** kitchen spray valves must use 1.6 gallons or less per minute.
 - 2. **Existing** kitchen spray valves must be retrofitted to models using 1.6 gallons of water or less per minute.

4. Commercial Water Recirculation Requirements

- a. **Car Wash and Laundry System Requirements:** All **new** commercial car-wash and laundry facilities and systems must re-circulate the wash water -- or secure a waiver of this requirement from the District.
 - b. **No Single-Pass Cooling Systems:** Buildings requesting **new** water service or being **remodeled** are prohibited from installing single-pass systems.
- 5. **Indiscriminate Water Use.** Upon notice by the District, persons shall cease to cause or permit the indiscriminate use of water not otherwise prohibited above which is wasteful and without reasonable purpose.
 - 6. **Public Health and Safety.** These regulations shall not be construed to limit water use which is immediately necessary to protect public health and safety for essential government services, such as police, fire and similar services.

Section VII: Level 1 Water Supply Shortage (Water Alert) *Up to 20% shortage in imported water supplied to the District and/or up to 20% reduction needed in consumer demand*

1. Level 1 Water Supply Shortage

- a. A Level 1 Water Supply Shortage exists when the District Board of Directors, at its sole discretion, determines and declares that **a reduction in consumer demand is necessary** due to drought or water supply cutbacks in order to make more efficient use of water and appropriately respond to existing water conditions.
 - b. The type of event that may prompt the Board to declare a Level 1 Water Supply Shortage could include, among other factors, a finding that its **wholesale water supplier has allocated to the District at least 80% of the District's base water supply**. "Base water supply" refers to the District's average annual water purchases from the wholesaler over a given period, as defined by the wholesaler. At this water allocation level, the District could experience a **shortage in imported supplies of up to 20%**.
- 2. Permanent Mandatory Water Conservation Measures** identified in Section VI **remain in effect**.
- 3. Level 1 Mandatory Water Conservation Measures take effect** upon the Board declaring a Level 1 Water Supply Shortage and apply for the duration of the shortage:
- a. **Limits on Outside Watering Days**
 1. No more than **three (3) days per week from April – October** and no more than **one (1) day per week from November – March**. This applies to lawns, landscaping and all other vegetated watering schedules. **Assigned watering days have been established to coincide with Municipal City Boundaries. Refer to Appendix B for assigned watering days.**
 2. The following are **exempt** from these restrictions:
 - a. Watering with a hand-held bucket or similar container
 - b. Watering with a hand-held hose equipped with a positive self-closing shut off hose nozzle
 - c. Irrigation systems that exclusively use very-low-flow drip type systems where emitters discharge no more than two (2) gallons of water per hour.
 - d. Irrigation systems equipped with sensor or weather based controllers.
- 4. Drought Factors:** The District may find it necessary to encourage further reductions in water use to meet restrictions placed on its import supply. The use of the Drought Factor will be based upon an independent evaluation developed by outside consultants to fairly and equitably limit use of water to all customers.

- a. The District will establish a Drought Factor for use in determining the indoor and/or outdoor water budgets for property served by the District that will comply with all applicable provisions of Proposition 218.
 - b. Following the effective date of the Drought Factor as established by the District, all customers will be billed based upon the adjusted indoor and outdoor water budgets.
5. **Other Prohibited Uses:** The District may implement other prohibited water uses as deemed necessary, after notice to customers.

Section VIII: Level 2 Water Supply Shortage (Water Supply Warning) *Up to 40% shortage in imported water supplied to the District and/or up to 40% reduction needed in consumer demand*

1. Level 2 Water Supply Shortage

- a. A Level 2 Water Supply Shortage exists when the District Board of Directors, at its sole discretion, determines and declares that **an additional reduction in consumer demand is necessary** due to drought or water supply cutbacks in order to make more efficient use of water and appropriately respond to water conditions.
 - b. The type of event that **may** prompt the Board to declare a Level 2 Water Supply Shortage could include, among other factors, a finding that its **wholesale water provider allocated to the District at least 60%** of the District's base water supply. "Base water supply" refers to the District's average annual water purchases from the wholesaler over a given period, as defined by the wholesaler. At this water allocation level, the District could experience a **shortage in imported supplies of up to 40%**.
2. The following **Mandatory Water Conservation Measures** remain in effect during a Level 2 Water Supply Shortage:
- a. **Permanent Water Conservation Measures** identified in Section VI
 - b. **Level 1 Water Conservation Measures** identified in Section VII
3. The following **Water Conservation Measures** take effect upon declaration of a Level 2 Water Supply Shortage and apply for the duration of the Shortage:
- a. **Additional Limits on Outside Watering Days**
 1. Watering lawns, landscaping and other vegetated areas is limited to **no more than two (2) days per week from April – October**. This is one (1) day less than required during a Level 1 Water Shortage. The number of watering days permitted from November – March remains the same at no more than one (1) day per week.
 2. The District will establish and post the new watering schedule. **Assigned watering days have been established to coincide with Municipal City Boundaries. Refer to Appendix B for assigned watering days.**
 3. The following are **exempt** from these restrictions:

- a. Watering with a hand-held bucket or similar container
 - b. Watering with a hand-held hose equipped with a positive self-closing shut off hose nozzle
 - c. Irrigation systems that exclusively use very-low-flow drip type systems where emitters discharge no more than two (2) gallons of water per hour.
 - d. Irrigation systems equipped with sensor or weather based controllers.
 - b. **Shorter Timeframe to Fix Leaks, Breaks or Malfunctions** in water users' pipelines, fixtures or facilities.
 - 1. Excessive use, loss or escape of water through breaks, leaks or other malfunctions in the water user's plumbing or distribution system must be **fixed in no more than three (3) days following notification from the District** – unless other arrangements are made with the District.
 - 2. This shorter timeframe is two (2) days less than required under Permanent Water Conservation Measures, Section VI.
 - c. **No Filling or Refilling Ornamental Lakes and Ponds**
 - 1. Filling or refilling ornamental lakes and ponds is prohibited.
 - 2. **Exempt** are ornamental lakes and ponds that sustain aquatic life -- provided such life is of significant value and was actively managed in the water feature prior to declaring the shortage.
 - d. **No Filling or Refilling Residential Pools or Spas**
 - 1. Filling residential swimming pools or outdoor spas is prohibited; refilling more than one (1) foot of water is prohibited.
 - 2. **Exempt** are individuals who, due to health reasons or medical conditions, find it necessary to fill or refill their pools or spas.
 - e. **No Hosing or Washing Down Vehicles:** It is prohibited to use water to hose or wash down a motorized or non-motorized vehicle, including but not limited to automobiles, trucks, vans, buses, motorcycles, boats or trailers. The **only exemption** from this restriction is washing vehicles at a commercial car washing facility that recycles its wash water.
 - f. **Other Prohibited Uses:** The District may implement other prohibited water uses as deemed necessary, following notification of customers.
4. **Drought Factors:** The District may find it necessary to encourage further reductions in water use to meet restrictions placed on its import supply. The use of the Drought Factor will be based upon an independent evaluation developed by outside consultants to fairly and equitably limit use of water to all customers.

- g. The District will establish a Drought Factor for use in determining the indoor and/or outdoor water budgets for property served by the District that will comply with all applicable provisions of Proposition 218.
 - h. Following the effective date of the Drought Factor as established by the District, all customers will be billed based upon the adjusted indoor and outdoor water budgets.
 - i.
5. **Other Prohibited Uses:** The District may implement other prohibited water uses as deemed necessary, after notice to customers.

Section IX. Level 3 Water Supply Shortage (Water Emergency) *More than 40% shortage in imported water supplied to the District and/or more than 40% reduction needed in consumer demand*

1. **Level 3 Water Supply Shortage Emergency**

- a. A Level 3 Water Supply Shortage exists when the District Board of Directors, at its sole discretion, determines and declares that **a further additional reduction in consumer demand is necessary** due to drought or water supply cutbacks in order to make more efficient use of water and appropriately respond to existing water conditions.
 - b. The type of event that **may** prompt the Board to declare a Level 3 Water Supply Shortage Emergency could include, among other factors, a finding that its **wholesale water provider allocated to the District less than 60% of the District's base water supply**. "Base water supply" refers to the District's average annual wholesale water purchases over a given period as defined by; the wholesaler. At this reduced water allocation level, the District could experience **a shortage in imported supplies of more than 40%**.
2. The following **Mandatory Water Conservation Measures remain in effect**:
- a. **Permanent Water Conservation Measures** identified in Section VI
 - b. **Level 1 Water Conservation Measures** identified in Section VII
 - c. **Level 2 Water Conservation Measures** identified in Section VIII
3. The following **Mandatory Water Conservation Measures take effect** upon declaring a Level 3 Water Emergency and apply for the duration of the Emergency:
- a. **All Outside Watering Prohibited**
 - 1. **Watering is prohibited on any day at any time** for lawns, landscaping and all vegetated areas.
 - 2. **Exempt** from this restriction are the following -- unless the District determines that recycled water is available and lawful for use:

- a. Public works projects and actively-irrigated environmental mitigation projects will be allowed to operate under the Outside Watering Restrictions identified in Level II – Section VIII.
 - b. Maintenance of vegetation, trees and shrubs using (subject to hour restrictions in Section VI.1.a.1):
 - 1. A hand-held bucket or similar container
 - 2. A hand-held hose equipped with a positive self-closing shut off hose nozzle
 - 3. Irrigation systems that exclusively use very-low-flow drip type systems where emitters discharge no more than two (2) gallons of water per hour
 - c. Maintenance of (subject to hour restrictions, Section VI.1.a.1):
 - 1. Existing landscaping necessary for fire protection and/or soil erosion control. To the extent necessary, the District will utilize appropriate outside agencies to confirm exemption eligibility.
 - 2. Plant materials identified as rare or essential to the well being of endangered/rare species
- b. **Shorter Timeframe to Fix Leaks, Breaks or Malfunctions** in pipelines, fixtures or facilities.
 - 1. Excessive use, loss or escape of water through breaks, leaks or malfunctions in the water user's plumbing or distribution system must be fixed in **no more than two (2) days** following District notification – unless other arrangements are made with the District. The timeframe is one (1) day less than for Level 2.
- c. **No New Potable Water Service**
 - 1. During a Level 3 Water Emergency, the **District will not provide:**
 - a. New potable water service
 - b. New water meters (temporary or permanent)
 - c. Will-serve letters
 - 2. The District will **only issue** will-serve letters in the following cases:
 - a. Projects necessary to protect public health, safety & welfare
 - b. Projects that have a valid, unexpired city building permit
 - c. Projects in which applicants can provide -- to the satisfaction of the District -- substantial evidence of an enforceable commitment that water demands will be offset prior to the provision of a new water meter(s)
 - 3. This prohibition **does not preclude** resetting or turning-on meters to restore or continue water service interrupted for one year or less.
- 4. **Discontinue Service:** Per Water Code Section 356, the District, in its sole discretion, may discontinue service to customers who willfully violate Section IX provisions.

5. **Drought Factors:** The District may find it necessary to encourage further reductions in water use to meet restrictions placed on its import supply. The use of the Drought Factor will be based upon an independent evaluation developed by outside consultants to fairly and equitably limit use of water to all customers.
 - a. The District will establish a Drought Factor for use in determining the indoor and/or outdoor water budgets for property served by the District that will comply with all applicable provisions of Proposition 218.
 - b. Following the effective date of the Drought Factor as established by the District, all customers will be billed based upon the adjusted indoor and outdoor water budgets.
6. **Other Prohibited Uses:** The District may implement other prohibited water uses as deemed necessary, following notification of customers

Section X. Other Provisions

1. **Customer Water Conservation Plans:**
 - a. **Customers with high annual water usage.** During Level 1, Level 2 or Level 3 Water Shortages or Emergencies, the District Board of Directors, at its sole discretion and by written request, may require residential, commercial and/or public customers using **ten thousand (10,000) or more billing units per year** to submit a Water Conservation Plan to the District and to submit quarterly progress reports on such plan. The conservation plan must make recommendations for increased water savings, including increased use of recycled water based on feasibility. Quarterly progress reports must include status on implementation of recommendations.
2. **Recycled Water To Replace Potable Water**
 - a. **Future Developments.** When available, El Toro Water District requires the use of recycled water in future developments.
 - b. **New Water Service:** Prior to the connection of any new water service, the District will determine whether recycled water is appropriate and available to meet the requirements of the new service request. Recycled water must be utilized to the extent feasible, as determined by the District.
 - c. **Transition from Potable Water:** The District may prohibit the use of potable water in certain instances – if the District determines that a specified use for potable water could be achieved with recycled water as a cost-effective alternative and the customer is given a reasonable time to make the conversion, as determined by the District's General Manager.
3. **Recycled Water Construction Site Requirements**
 - a. **Recycled or non-potable water** must be used, when available.

- b. **No potable water may be used for soil compaction or dust control** where there is a reasonably-available source of recycled or non-potable water approved by the Department of Public Health and appropriate for such use.
 - c. **Water hoses shall be equipped with automatic shut-off nozzles**, given such devices are available for the size and type of hoses in use.
- 4. **Automated Irrigation Control System Requirements for Commercial, Multi-Family and Community Development/Redevelopment Projects**

New Commercial, Multi-Family and Community development and/or redevelopment projects that include landscaped open space, park and recreation areas will be required to install a sensor-based or weather-based irrigation controller, effective July 1, 2010.
- 5. **A Customer Water Waste Hotline** will be established and incorporated into the District's Customer Outreach Plan.

Section XI. Declaration & Notification of Water Shortages/Emergencies

- 1. **Declaration of a Level 1, 2 or 3 Water Shortage Emergency:** The District Board of Directors may declare a Level 1, 2 or 3 Water Shortage Emergency in accordance with the procedures specified in Water Code Sections 351 and 352 (Public Hearing, Notice and Publication). Thereafter, penalties and violations under Section XIII apply.
- 2. **Notification of Declared Water Shortages and Emergencies**
 - a. The District must publish a copy of the water shortage/emergency resolution in a newspaper used for the publication of official notices within the jurisdiction of the District within **ten (10) days** of the date that the shortage level is declared.
 - b. Additional mandatory conservation requirements will take effect no sooner than the **fifteenth (15) day** after the date that the shortage level is declared
- 3. **Notification of Declared Water Allocation or Water Budget Program**
 - a. If the District Board of Directors, at its sole discretion, establishes a Drought Factor **during a Level 1, 2 or 3 Water Shortage/Emergency:**
 - 1. The District will comply with all applicable provisions of Proposition 218.
 - 2. The program will take effect on the date indicated on any such Proposition 218 notice..

Section XII. Hardship Waiver

- 1. **Undue and Disproportionate Hardship:** If, due to unique circumstances, a specific requirement of the Ordinance would result in undue hardship to a person using water or to property upon which water is used, that is disproportionate to the impacts to water users generally or to similar property or classes of water users, then the person may apply for a waiver to the requirements as provided in this section.

2. **Written Finding:** The waiver may be granted or conditionally granted only upon a written finding of the existence of facts demonstrating an undue hardship.
- a. **Application for a Waiver:** Application for a waiver must be on a form prescribed by the District.
 - b. **Supporting Documentation:** The application must be accompanied by photographs, maps, drawings, and other information, including a written statement of the applicant.
 - c. **Required Findings for Waiver:** Based on the information and supporting documents provided in the application, additional information provided as requested, and water use information for the property as shown by the records of the District, the District **General Manager** in making the waiver determination will take into consideration the following:
 - 1. That the waiver does not constitute a grant of special privilege inconsistent with the limitations upon other residents and businesses;
 - 2. That because of special circumstances applicable to the property or its use, the strict application of this Ordinance would have a disproportionate impact on the property or use that exceeds the impacts to residents and businesses generally;
 - 3. That the authorizing of such waiver will not be of substantial detriment to adjacent properties, and will not materially affect the ability of the District to effectuate the purpose of this Ordinance and will not be detrimental to the public interest; and
 - 4. That the condition or situation of the subject property or the intended use of the property for which the waiver is sought is not common, recurrent or general in nature.
 - d. **Approval Authority**
 - 1. The District General Manager or his designee(s) must act upon any completed **Application for a Waiver** no later than ten (10) days after receipt by the District.
 - 2. The General **Manager or his designee(s) may approve, conditionally approve, or deny the waiver** and the decision will be final.
 - 3. The applicant requesting the waiver must be promptly notified in writing of any action taken. Unless specified otherwise, at the time a waiver is approved, it will apply to the subject property for the duration of the water supply shortage or emergency.

Section XIII: Non-Compliance Charges and Penalties

1. **Non-Compliance with Permanent, Level 1 & Level 2 Mandatory Conservation Measures**

- a. The District's Tiered Conservation Rate Structure is designed to provide an adequate indoor and outdoor water budget to all customers while staying within the water allocations imposed on the District by its wholesale supplier. It also imposes a significant financial burden through the upper tiers sufficient to cover the cost of any penalties and provide a financial incentive for the customer to work within the allowed budgets. The following additional measures, which are intended to further encourage customers' compliance with the mandatory water use restrictions will apply to persons or entities that fail to comply with any provision of the Ordinance for Permanent, Level 1 and Level 2 mandatory water conservation measures.

1. **Non-Compliance:** The District will issue a **written warning** and provide information regarding the necessity to comply with all Water Conservation Measure.

2. **Non-Compliance with Level 3 Mandatory Conservation Measures**

- a. **Non-Compliance Charges:** The following will apply to persons or entities failing to comply with any provision of the Ordinance for Level 3 Mandatory Water Conservation Measures:

1. **First Instance of Non-Compliance:** The District will issue a **written warning** and send it along with an explanation of the violation.
2. **Second Instance of Non-Compliance:** A second instance of non-compliance with the Ordinance within the preceding twelve (12) calendar months is punishable by a non-compliance charge on the water bill not to exceed **two hundred and fifty dollars (\$250)**.
3. **Third Instance of Non-Compliance:** A third instance of non-compliance with the Ordinance within the preceding twelve (12) calendar months is punishable by a non-compliance charge on the water bill not to exceed **five hundred dollars (\$500)**.

b. **Water Flow Restrictor and/or Termination of Service**

1. **Water Flow Restrictor Device.** In addition to any non-compliance charges, the District may install a water flow restrictor device. If the District determines to install a water flow restrictor, installation of the flow restrictor would follow written notice of intent to the customer and would be in place for a minimum of forty eight (48) hours.
2. **Termination of Service:** In addition to any non-compliance charges and the installation of a water flow restrictor, the District may disconnect and/or terminate a customer's water service, pursuant to Water Code Section 356.

3. **Costs for Water Flow Restrictors and Service Disconnection**

- a. A person or entity in non-compliance with this Ordinance is responsible for payment of the District's charges for installing and/or removing any flow restricting device and for disconnecting and/or reconnecting service per the District's schedule of charges then in effect.
 - b. The charge for installing and/or removing any flow restricting device must be paid to the District before the device is removed.
 - c. Nonpayment will be subject to the same remedies as nonpayment of basic water rate
 - c. **Misdemeanor:** Pursuant to Water Code Section 377, any instance of non-compliance with the Ordinance may be prosecuted as a misdemeanor punishable by imprisonment in the county jail for not more than thirty (30) days or by a fine not exceeding one thousand dollars (\$1,000) or by both.
3. **Separate Offenses:** Each day that a person or entity is non-compliant with the Ordinance is a separate offense.

4. **Notice of Non-Compliance/ Appeal and Hearing Process**

- a. The District will issue a **Notice of Non-Compliance** by mail or personal delivery at least ten (10) days before taking enforcement action. The notice will describe the violation and, if applicable, the date by which corrective action must be taken.
 - b. **A customer may appeal the Notice of Non-Compliance** by filing a written Notice of Appeal with the District no later than the close of business on the 10th day following receipt of the enforcement action. A customer appeal shall state the grounds for the appeal.
 - 1. **Any Notice of Non-Compliance not timely appealed will be final.**
 - 2. Upon receipt of a timely appeal, **the District will schedule a hearing on the appeal** and mail written notice of the hearing date to the customer at least ten (10) days before the hearing.
 - 3. The District General Manager or his designee(s) will hear the appeal and issue a written **Notification of Decision** within ten (10) days of the hearing.
 - c. Pending receipt of a written appeal or pending a hearing pursuant to an appeal, the District **may take appropriate steps to prevent the unauthorized use of water** given the nature and extent of the violations and the current declared water shortage level condition, including restricting the level of water use until the appeal is heard.
5. **Utilization of Collected Charges for Non-compliance with applicable Water Conservation Measures**

The Board of Directors hereby declares its intent to use these funds to pay any penalties/charges that may be imposed by the wholesale water provider of the District for exceeding its baseline water supply allocation and in furtherance of conservation efforts and/or acquisition of supplemental water supplies.

Section XIV: Severability: If any section, subsection, sentence, clause or phrase in this Ordinance is for any reason held invalid, the validity of the remainder of the Ordinance will not be affected. The District Board of Directors hereby declares it would have passed this Ordinance and each section, subsection, sentence, clause or phrase thereof, irrespective of the fact that one or more sections, subsections, sentences, clauses, or phrases thereof is declared invalid.

Appendix E

60 Day Notification Letters



El Toro Water District

"A District of Distinction"

Serving the Public - Respecting the Environment

March 16, 2011

Board of Directors

Ted F. Martin
M. Scott Goldman
John S. Dudley
William H. Kahn
Jerard B. Werner

General Manager

Robert R. Hill

County of Orange
Clerk-Recorder
12 Civic Center Plaza, Room 101
Santa Ana, CA 92701

Attention: Tom Daly, Clerk Recorder, and

Alisa Drakodaidis, Deputy CEO, OC Infrastructure

Re: El Toro Water District 2010 Urban Water Management Plan Update

Dear Mr. Daly,

The El Toro Water District (ETWD) is in the process of preparing its 2010 Urban Water Management Plan (UWMP). UWMPs are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves 3,000 or more connections is required to prepare an UWMP every five years.

A public hearing on ETWD's 2010 UWMP is scheduled for May 26, 2011. The draft plan will be available for review beginning April 21, 2011 on ETWD's website (etwd.com) and at the front desk of the Customer Service office located at 24251 Los Alisos Blvd., Lake Forest, CA, 92630. The deadline for adopting the UWMP is July 1, 2011. A copy of the 2010 UWMP will be provided to the County of Orange no later than 30 days after its adoption.

Sincerely,

EL TORO WATER DISTRICT

Robert R. Hill, General Manager

Cc: Michael P. Grandy, CFO

Michael W. King, Customer Service Manager

RF



El Toro Water District

"A District of Distinction"

Serving the Public - Respecting the Environment

March 16, 2011

Board of Directors

Ted F. Martin
M. Scott Goldman
John S. Dudley
William H. Kahn
Jerard B. Werner

General Manager

Robert R. Hill

City of Mission Viejo
200 Civic Center
Mission Viejo, CA 92691

Attention: Dennis Wilberg, City Manager

Re: El Toro Water District 2010 Urban Water Management Plan Update

Dear Dennis,

The El Toro Water District (ETWD) is in the process of preparing its 2010 Urban Water Management Plan (UWMP). UWMPs are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves 3,000 or more connections is required to prepare an UWMP every five years.

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Sincerely,

EL TORO WATER DISTRICT

Robert R. Hill, General Manager

Cc: Michael P. Grandy, CFO

Michael W. King, Customer Service Manager

Mark Chagnon, Director of Public Works, City of Mission Viejo



El Toro Water District

"A District of Distinction"

Serving the Public - Respecting the Environment

Board of Directors

Ted F. Martin
M. Scott Goldman
John S. Dudley
William H. Kahn
Jerard B. Werner

General Manager

Robert R. Hill

March 16, 2011

City of Lake Forest
25550 Commercentre Drive, Suite 100
Lake Forest, CA 92630

Attention: Robert C. Dunek, City Manager

Re: El Toro Water District 2010 Urban Water Management Plan Update

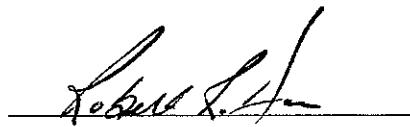
Dear Robert,

The El Toro Water District (ETWD) is in the process of preparing its 2010 Urban Water Management Plan (UWMP). UWMPs are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves 3,000 or more connections is required to prepare an UWMP every five years.

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Sincerely,

EL TORO WATER DISTRICT



Robert R. Hill, General Manager

Cc: Michael P. Grandy, CFO

Michael W. King, Customer Service Manager

Robert Woodings, Director of Public Works, City of Lake Forest



El Toro Water District

"A District of Distinction"

Serving the Public - Respecting the Environment

March 16, 2011

Board of Directors

Ted F. Martin
M. Scott Goldman
John S. Dudley
William H. Kahn
Jerard B. Werner

General Manager

Robert R. Hill

City of Laguna Woods
24264 El Toro Road
Laguna Woods, CA 92637

Attention: Leslie Ann Keane, City Manager

Re: El Toro Water District 2010 Urban Water Management Plan Update

Dear Leslie,

The El Toro Water District (ETWD) is in the process of preparing its 2010 Urban Water Management Plan (UWMP). UWMPs are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves 3,000 or more connections is required to prepare an UWMP every five years.

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Sincerely,

EL TORO WATER DISTRICT

Robert R. Hill, General Manager

Cc: Michael P. Grandy, CFO

Michael W. King, Customer Service Manager

Doug Reilly, Director of Public Works, City of Laguna Woods



El Toro Water District

"A District of Distinction"

Serving the Public - Respecting the Environment

Board of Directors

Ted F. Martin
M. Scott Goldman
John S. Dudley
William H. Kahn
Jerard B. Werner

General Manager

Robert R. Hill

March 16, 2011

City of Aliso Viejo
12 Journey, Suite 100
Aliso Viejo, CA 92656

Attention: Mark Pulone, City Manager

Re: El Toro Water District 2010 Urban Water Management Plan Update

Dear Mark,

The El Toro Water District (ETWD) is in the process of preparing its 2010 Urban Water Management Plan (UWMP). UWMPs are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves 3,000 or more connections is required to prepare an UWMP every five years.

A public hearing on ETWD's 2010 UWMP is scheduled for May 26, 2011. The draft plan will be available for review beginning April 21, 2011 on ETWD's website (etwd.com) and at the front desk of the Customer Service office located at 24251 Los Alisos Blvd., Lake Forest, CA, 92630. The deadline for adopting the UWMP is July 1, 2011. A copy of the 2010 UWMP will be provided to the City of Aliso Viejo no later than 30 days after its adoption.

Sincerely,

EL TORO WATER DISTRICT

Robert R. Hill, General Manager

Cc: Michael P. Grandy, CFO

Michael W. King, Customer Service Manager

John Whitman, Director of Public Works, City of Aliso Viejo



El Toro Water District

"A District of Distinction"

Serving the Public - Respecting the Environment

March 16, 2011

City of Laguna Hills
24035 El Toro Road
Laguna Hills, CA 92653

Attention: Bruce E. Channing, City Manager

Re: El Toro Water District 2010 Urban Water Management Plan Update

Dear Bruce,

The El Toro Water District (ETWD) is in the process of preparing its 2010 Urban Water Management Plan (UWMP). UWMPs are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves 3,000 or more connections is required to prepare an UWMP every five years.

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Sincerely,

EL TORO WATER DISTRICT

Robert R. Hill, General Manager

Cc: Michael P. Grandy, CFO

Michael W. King, Customer Service Manager

Ken Rosenfield, Director of Public Works, City of Laguna Hills

Appendix F
Public Hearing Notice

RECEIVED

JUN 05 2011

REDWINE & SHERRILL

AFFIDAVIT OF PUBLICATION

STATE OF CALIFORNIA,)
) ss.
 County of Orange)

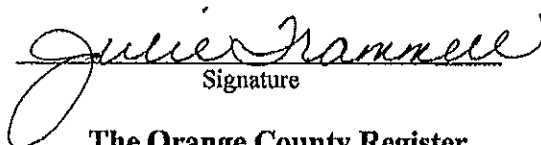
I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of **The Orange County Register**, a newspaper of general circulation, published in the city of Santa Ana, County of Orange, and which newspaper has been adjudged to be a newspaper of general circulation by the Superior Court of the County of Orange, State of California, under the date of 1/18/52, Case No. A-21046, that the notice, of which the annexed is a true printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

May 11, 18, 2011

"I certify (or declare) under the penalty of perjury under the laws of the State of California that the foregoing is true and correct":

Executed at Santa Ana, Orange County, California, on

Date: May 18, 2011


 Signature

The Orange County Register
 625 N. Grand Ave.
 Santa Ana, CA 92701
 (714) 796-7000 ext. 2209

PROOF OF PUBLICATION

Proof of Publication of

PUBLIC NOTICE
NOTICE OF PUBLIC HEARING

The El Toro Water District (ETWD) will hold a Public Hearing on the District's proposed 2010 Urban Water Management Plan (Sixth Amendment) in accordance with Section 10642 of the California Water Code (Urban Water Management Planning Act of 1983). The purpose of the hearing will be to solicit public comment prior to adoption.

The public hearing has been scheduled for Thursday, May 28, 2011 at 7:30 a.m. or as soon thereafter as practicable at ETWD's administrative offices located at 24251 Los Alisos Boulevard, Lake Forest, California, 92630. Copies of ETWD's proposed 2010 Urban Water Management Plan (Sixth Amendment) are available for public inspection at ETWD's Administrative Offices. All questions, concerning ETWD's proposed 2010 Urban Water Management Plan (Sixth Amendment) and/or the public hearing should be referred to Robert R. Hill, General Manager, at (949) 837-7050.

Robert R. Hill, General Manager/Asst. Secretary
 EL TORO WATER DISTRICT

Publish: Orange County Register
 May 11, 2011 & May 18, 2011 R-742 9366655

Appendix G
Copy of Plan Adoption

RESOLUTION NO. 11-5-1

**RESOLUTION OF THE DIRECTORS OF THE
EL TORO WATER DISTRICT ADOPTING THE
SIXTH AMENDMENT TO THE DISTRICT'S
URBAN WATER MANAGEMENT PLAN
[2010]**

WHEREAS, the California Legislature in 1983 enacted the Urban Water Management Plan Act (Water Code §10610 et seq.) which mandates that suppliers of water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan;

WHEREAS, since its passage in 1983, several amendments have been made to the Urban Water Management Plan Act, the most recent in 2010;

WHEREAS, the Urban Water Management Plan Act (§10621 of the California Water Code) requires that Urban Water Management Plans be periodically updated at least once every five years on or before December 31, in years ending in five and zero, in order to reflect changes in water supply, water quality, trends, conservation policies and the law;

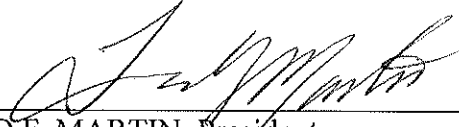
WHEREAS, the El Toro Water District has amended its Urban Water Management Plan on four previous occasions, the last of which (Fifth Amendment) was November 22, 2005;

WHEREAS, the El Toro Water District adopted Supplement No. 1 to the Fifth Amendment to its Urban Water Management Plan at a properly noticed public hearing on September 27, 2007;

WHEREAS, the El Toro Water District has prepared and made available for public review, a Sixth Amendment to its Urban Water Management Plan. In furtherance of its adoption, a properly noticed public hearing regarding said Plan was held by the Board of Directors on May 26, 2011;

NOW, THEREFORE, BE IT RESOLVED, that the El Toro Water District hereby adopts the Sixth Amendment to its Urban Water Management Plan which is attached hereto, marked Exhibit "A", and by this reference is incorporated herein as though set forth in full.

ADOPTED, SIGNED AND APPROVED this 26th day of May, 2011.



TED F. MARTIN, President
El Toro Water District and of the
Board of Directors thereof

(SEAL)




MICHAEL P. GRANDY, Secretary
El Toro Water District and of the
Board of Directors thereof

ATTEST

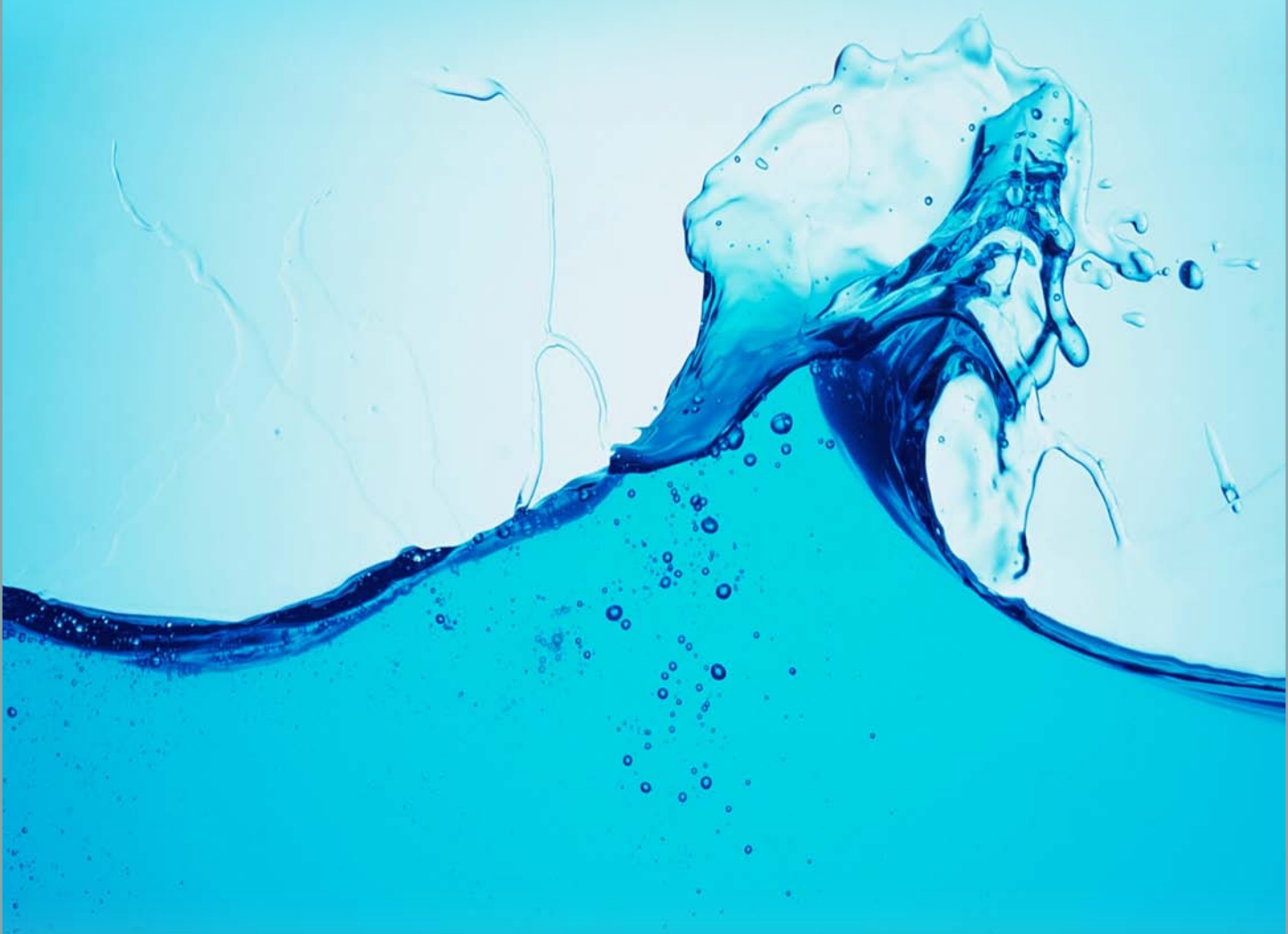
STATE OF CALIFORNIA)
)
COUNTY OF ORANGE)

I, MICHAEL P. GRANDY, Secretary of the Board of Directors of the El Toro Water District, do hereby certify that the attached is a full, true and correct copy of Resolution No. 11-5-1 of said Board, and that the same has not been amended or repealed.

DATED: May 26, 2011


MICHAEL P. GRANDY, Secretary
El Toro Water District and of the
Board of Directors thereof

(SEAL)



8001 Irvine Center Drive, Suite 1100
Irvine, CA 92618
949.450.9901 Fax 949.450..9902

**MALCOLM
PIRNIE**

 **ARCADIS**

The Water Division of ARCADIS